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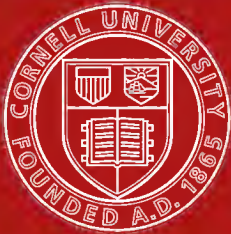
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Henry L. Doherty

The Pulse of the Organization

Edited by

Leonhard Felix Fuld, LL. M., Ph. D.,

Educational Director, Bond Department,

Henry L. Doherty & Company,

New York



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PREFACE

During the past year a committee of executives of the Doherty Organization planned a course of lectures which were delivered to the employees of the Organization on Tuesday afternoons on Company time in an auditorium located near the central office of the Organization. Each member of the Organization, from the members of the co-partnership and the heads of department to the youngest recruit among the junior clerks attended these meetings.

In selecting the subjects of the addresses, and in assigning members of the Organization and in inviting outsiders to address the Organization, an effort was made to furnish to the employees material which was both inspirational and educational in character. The object sought in the inclusion of each address in this series was stated by the chairman at the commencement of each address, and these introductory remarks of the chairman have been reprinted at the commencement of each chapter of this volume. Each address was reported stenographically. A copy of the address in printed form was distributed to each member of the Organization shortly after the delivery of the address for careful study and permanent preservation.

In the hope that this collection of addresses may be found to contain some information regarding the Doherty Organization which will be of interest and of practical value to the friends of the Organization and to those who are professionally concerned in the problems of personnel administration, a few sets of these addresses have been bound in book form.

LEONHARD FELIX FULD

60 Wall St. New York

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CHAPTER ONE

PERSONAL BUSINESS ASSETS.

By HORATIO N. DRURY,
of the firm of Pace & Pace, New York

Introduction. The subject upon which I have been asked to make a few observations is "Personal Business Assets." There are three major considerations that at the very outset of my remarks I would call to the attention of every young employee in this Doherty audience who expects to make any aspect of organized effort his or her life work. These considerations relate, first, to the personnel problem of nearly every enterprise; second, to the spirit of cooperation; third, to the spirit of service. A sound grasp of these basic phases of modern business, whatever the nature or the size of the concern, is, in my opinion, an absolutely essential prerequisite to the attainment of success.

In introducing the lecturer, Dr. Fuld said: The Doherty Organization has been very successful, astonishingly so, and this success has been entirely due to the quality of its personnel, to the kind of men and women who are working with the Organization. There is a reason for this. In most Organizations, the ambitious employee must wait for dead men's shoes. And it seems to the ambitious employee that men never die and seldom resign.

That is not true of the Doherty Organization. This Organization has been growing so rapidly, and is growing so rapidly at the present day, that every employee must be ready to go up at all times. It is almost true that the employee who cannot go up in the Doherty Organization must go out. But in order to go up, the employees must be able to deliver the goods, and with a view to assisting the employees of the Organization in delivering the goods this series of Tuesday afternoon addresses has been arranged.

Today we have with us Horatio N. Drury, who will speak to us on the subject of "Personal Business Assets." Mr. Horatio N. Drury.

Personnel Problem. The most important problem that faces every organization of the present day is the problem of personnel. Its importance from the organization viewpoint is due to the fact that the successful progress of every business concern depends upon the character, the training, and the competency of the men and women that perform or direct its activities. If the business is to expand and at the same time become more and more cohesive, systematic provision must be made for the steady inflow of new employees and the equally steady development of employees who have already demonstrated their worth. Once this problem is slighted, the enterprise begins to become stagnant, and the seeds of future decay are sown. It is no wonder, therefore, that practically all future-building firms of the present day are devoting much time, energy, and money to the selection of competent employees, to their vocational adjustment, and to their developmental training through study and practical experience.

This matter of personnel is, of course, a vital matter from the viewpoint of the individual member of it, whether man or woman; for making the proper kind of business connection means not only an immediate earning capacity, but also the opportunity for usefulness, for development, and for economic satisfaction. And, so, as regards the development of personnel, the interests of employers and employees are, in a large sense, one and the same.

Cooperation. The personnel problem suggests a word or two about the new spirit that to-day marks the economic relations between employers and employees—the spirit of cooperation. A new preposition has come to the forefront in connection with the verb “work.” It is the preposition “with”—not the preposition “for,” not the preposition “under,”—both “for,” and “under” being reflective of conditions existing in a commercial age that is rapidly disappearing.

Not long ago I asked a bright-faced office boy (he was not chewing gum, by the way) in a certain organization, what his duties were. He replied at once, “I’m working with Mr. Blank,” naming the head of an

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important department. This youngster was working "with" Mr. Blank, mind you, not "for" or "under" him. I predict big things for that lad, because he has fully grasped the cooperative spirit of to-day; and by the same token I shall not be surprised to hear of the further advancement of Mr. Blank himself.

A common-sense analysis of present conditions proves that the cooperative spirit between employers and employees has come to stay as being the only sensible and decent way of working together. Yet candor compels me to remark that many employees apparently think that all this talk about and insistence upon cooperation is a pose of the employers to get more and better work done. While increased productivity undoubtedly occurs in an organization reflecting the "all-of-us together" spirit, the great majority of employers, who, after all, are human beings and not ogres, believe in cooperation fully as much for the sake of their employees as for their own sake; for cooperation develops morale, and morale is the invisible power that enables every person in an organization to do his work efficiently and enthusiastically.

Service Spirit. Just as the cooperative spirit characterizes the relation between employers and employees, just so the spirit of service—genuine, generous service—characterizes, or should characterize, the present-day relations between progressive enterprises and the purchasing public. The pronouns "I" and "we" have largely given way to the pronoun "you." Instead of trying to do something "to" prospective purchasers, business concerns try nowadays to do as much as possible "for" them.

This spirit of service many organizations have found to be more of a business-holder and a business-builder than is even the quality or the price of the wares offered for sale. And so every young man or young woman who aims to go fast and far in business must realize at once that the more intelligently and sympathetically the interests of prospective purchasers can be interpreted and provided for, the bigger the reserve of goodwill that is being stored up to the advantage of the organization; and goodwill is, of course, in many respects the greatest single asset that any kind of enterprise can accumulate.

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I now pass on to a rapid survey of a few personal business assets—only a few, of course, because the time at my disposal is limited.

Physical Health. I put physical health first. Nowadays there is a keen realization of the close connection between bodily fitness and the quality of mental output. Do you recall the old Latin motto, “*Mens sana in corpore sano*”? Its meaning, “A sound mind in a sound body”, certainly applies to modern business life. And there is no logical reason why most of us should not secure and maintain good physical health. Tennis, golf, swimming, gymnasium work, walking—most of these and similar opportunities for physical exercise are available to us all; and we have only ourselves to blame if we permit ourselves to become fat and flabby, and short of breath. Guard, then, your physical health—Personal Business Asset Number One.

Loyalty. Directly after physical health I put another totally different kind of personal business asset—loyalty. There are two kinds of loyalty—active and passive. It is only the actively loyal employees, those who believe in the concern they work for, in its wares, its objectives, its methods, and who in what they say and do reflect that belief, that can be termed truly loyal. Loyalty does not mean a disposition to refrain from constructive criticism as respects what you consider to be errors of method and management, so long as you express your views to a responsible executive within the organization itself; but loyalty does mean that, so far as the outside world is concerned, you have only words of praise for your employers and the things they are trying to accomplish.

Permit me to read an editorial on Loyalty written some time ago by Homer S. Pace, C. P. A., of the organization with which I am personally associated:

“Loyalty—what is it? We define the term as devotion to the interests of another—a friend, a sweetheart, or a wife; or devotion to the interests of an ideal or an organization—a political party, a business enterprise, or one’s country. No sweeter or more wholesome word have we in all the reaches of our mother tongue—a word that expresses constancy, honesty, self-sacrifice,

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affection, and devotion.

"Loyalty is a reciprocal quality that knits and holds together the modern business organization. The organization seeks men and women who can become interested in its aims, in its procedures and in its product, and who can work whole-heartedly with their official superiors and with their associates. In short, it seeks men and women who have loyalty, potential or developed.

"The employee, on the other hand, seeks to associate himself with the organization that is loyal to its employees—the organization that honestly endeavors in the wage scale, in salary adjustments, in profit distribution, and in educational and other welfare work, to apportion returns on the basis of the effort contributed by each worker. In fine, the employee desires to work with the organization that loyally seeks to promote his interests.

"Cultivate loyalty as part of your business education. When the temptation arises—and it will arise times without number—to criticize adversely your organization, your department, your chief, or your associate for the mere sake of airing a supposed grievance, don't do it—be loyal. Focus your energies and your interest and your hopes on the task in hand and on the organization of which you are a part, to the exclusion of competing and distracting ideas—ideas that stifle your development and retard your advancement. Loyalty to a task or to a chief has carried many a man over dangerous vocational crises, and led him into a position of responsibility. Nurture and develop this fundamental equality of friendship and success—loyalty, whole-hearted loyalty—in order that the wholeness of its qualities may brighten and better your life."

Loyalty, then, I regard as Personal Business Asset Number Two.

Initiative. Another important quality to be developed by all young men and women who have not yet proved their value is initiative. The trouble with many departmental employees is that, once they have learned the required way of doing their daily work, they give no thought to the respects in which they might improve conditions and methods. Hence they are likely to become mere groove-fillers, rut-dwellers. They should often ask themselves two questions:

"Why am I supposed to do this particular piece of work in this way?" and—

"Is there any better way of doing it?"

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An honest attempt to answer these questions will develop the creative faculties—will produce new ideas; and new ideas are at a greater premium in all divisions of the business world to-day than ever before. So do your daily work, no matter how routine in character, intelligently, thinkingly, and thereby develop initiative—Personal Business Asset Number Three.

Broad Perspective. It is not enough in these days of complex and many-sided enterprises for ambitious employees to content themselves with performing narrow-range duties in a manner acceptable to the organization. If they would qualify for advancement to positions of executive responsibility, they must develop not only a broad perspective of the interrelations of the various departments of the concern as a functioning entity but also a broad perspective of the fundamental principles and characterizing processes and procedures of business as a science.

In this connection, permit me to read something that I once wrote on this very matter:

"This is the age of specialization in business, for it is by means of specialization that the greatest profit returns are secured. Every large business organization is divided and subdivided into departments and sub-departments, with relatively few managerial positions, and with scores of routine positions filled by routine employees. Each functions in his own narrow groove with no opportunity of widening his perspective of the work of the organization as a whole.

"The bookkeeper posts away at his ledger, thinking only of the schedules that must balance. The stock clerk earns his weekly wage by checking up invoices of goods purchased and bills of goods sold, with now and then an inventory of goods on hand. The cashier thinks by day and dreams by night of petty cash, pay rolls, discounted bills, and extensions of notes. The salesman frets over his failure to sell X, Y and Company in the town of Z a double order of worsted fabrics, and spends his mental energy in devising new methods of selling approach. The publicity man puts his mind day in and day out on newspaper space, pictorial booklets, display type, and special advertising campaigns.

"And so it goes, each employee doing his particular work, and trying to do it well, in order that the monthly report of each department to the General Manager may show that it is doing its share in the attainment of the profit object of the organization.

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"Specialization has come to stay, and will doubtless be carried to even greater extremes in the future as enterprises continue to develop and become more complex. There are, however, to-day many signs of the growing conviction on the part of business organizations themselves that individual specialization must be accompanied, or, better still, preceded, by the development of individual perspective.

"The progressive business organizations of the present day have come to realize that their future business development—in fact, their future business existence—depends upon the development of managerial capacity in their individual employees. Many organizations, indeed, have turned schoolmaster, and are conducting classes on company time and at company cost in order to give selected groups of their employees a broad perspective of business as a whole and as applied to the particular needs and conditions of the organizations themselves. All this is being done because it is realized that no man can be an efficient executive unless he views business in a broad manner."

Therefore, give heed to the necessity of studying the activities of your organization in a broad way—develop a broad perspective—Personal Business Asset Number Four.

Reasoning Power. No less important than the development of broad perspective is the development of reasoning power—development of the ability to think consecutively and logically. It is astonishing how comparatively few persons there are, regardless of the extent of their academic training, who, on the basis of a given accumulation of data, can reason straight ahead from sound premises to an inescapable conclusion, uncolored by sympathy, bias, or prejudice. It is a pity that such is the case, for business opportunity is close at hand for all men and women who have demonstrated their ability to assume responsibility on the basis of sound thinking.

On this matter, too, I had something to say in a pamphlet which was printed last year, as follows:

"The policy of specialization has not only narrowed the business perspective of the vast majority of organization employees, it has, worse yet, dulled their reasoning power by making it unnecessary for them to think out why they are required to do specified things in a specified way. Many an organization executive has short-sightedly said in effect to his subordinates: 'I

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will do the thinking for this department; all you have to do is to follow directions.' Such an attitude, very general until the past few years, has produced the inevitable result—men who cannot think and reason, because they have never been required to think and reason.

"To-day the most progressive business enterprises are undergoing a complete change of heart in respect to developing the reasoning power of the members of their organization staffs. No one person or group of persons can possibly know all there is to know even about one kind of business. There is an urgent need of men and women who can promote, finance, manage, suggest, and originate; men and women who can increase sales, reduce expenses, devise productive policies, detect errors and rectify them, analyze past records and forecast future development, swell profits expected, and create profits unexpected; men and women who can collect facts and observe facts and figure out facts; and base sound conclusions upon such facts; men and women who can and do think and reason.

"To develop such men and women within the organization itself is now a widely accepted policy of business management; and so every progressive business organization is on the alert for keen-minded, ambitious young men and young women who are intent, not only on doing their daily work well, but on pushing ahead as rapidly as their own developed reasoning power will warrant. This is the new spirit in Modern Business, and Modern Business itself is responsible for it."

So give thought to the connection between your individual advancement and the development of reasoning power—Personal Business Asset Number Five.

Imagination. If you aspire to positions of high executive responsibility, you must develop imagination. There was a time when imagination or vision—call this quality whatever you choose—was considered to be the exclusive possession of the poet, the dreamer, the visionary. That time is now happily past, for, in many respects, the big business men are the greatest poets of all. They dream dreams and see visions of future accomplishment on the basis of present conditions and past development.

This is true of every worth-while business organization that has reached a position of wide usefulness and financial stability; it is true, indisputably true, of your own organization. I was deeply in-

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terested in an extremely informative and inspiring article on the Doherty Organization which appeared in *The American Magazine* a few months ago. Read that article and see for yourselves how your present great Organization is the realization of the early dreams and visions of Henry L. Doherty. Moreover, I venture the opinion that Mr. Doherty and his associated executives are still dreaming—dreaming of new tasks to be performed, new markets to be conquered, new ideals of service to be made effective. When a business gets to the point where all its dreams have been unfolded and realized, what you might call mental gangrene begins to set in—retrogression begins to occur; for there are only two kinds of movement possible for the individual or the business firm—forward or backward. There is no such thing as standing still. Your organization is, of course, going forward—leaping forward, almost; hence the reasonableness of the assumption that it is still being guided by dreams and visions of increased usefulness.

Visualize, then, the history of your organization; familiarize yourselves with what it, as a whole, has done, is doing, and is planning to do; become economic dreamers by developing imagination—Personal Business Asset Number Six.

Self-Development. All that I have said suggests my next point—self-development. There are two ways of securing the kind of mental development, including, of course, usable knowledge, which is at a high premium during this post-war period—through observation and experience exclusively, and through study practically applied.

The first way—the observation and experience way—usually involves a heavy cost of time and judgment-revision before the information thus acquired can be transmuted into accurate and useful knowledge. In the opinion of forward-looking executives, self-development to-day comes primarily from study. Listen to what Frank A. Vanderlip, for many years president of the National City Bank of New York, and a distinguished economist, once said:

“The changed scope, character, and methods of modern business have united to demand men with a training superior to

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anything that was ever needed before as the successful commercial leaders of the future. That training cannot be had in the highly specialized processes of the routine work of the office. The practical school of experience is too wasteful as a teacher of general principles. There will, of course, be the exceptional man who will come up through that routine training and dominate his field by the force of his intellect, but in the main the new condition of affairs demands a superior training such as only the schools can give."

So begin now to interpret your stages of advancement in terms of supplementary courses of intensive, purposeful study, which is sure to produce self-development—Personal Business Asset Number Seven.

Personal Overtime. Last of all, permit me to point out that for the big majority of employed men and women, self-development depends upon the use that is made of spare hours, personal overtime. Analyze the reasons for the success of any business leader, and you will find that he made productive use of the time that most people are wont to fritter away in one fashion or another.

I have long felt so strongly on this matter that I once wrote a booklet entitled "Your Personal Overtime." Here are a few excerpts from it:

"By personal overtime I mean those many hours outside the compass of the time properly devoted to one's regular occupation, to legitimate and desirable recreation, and to sleep—hours which all too often mean idleness, dissatisfaction, discouragement, temptation, and perhaps folly, vice and crime, but which ought to mean intelligent utilization in terms of future efficiency and a future increase in earning capacity. Personal overtime of this kind—one hour of it a day means 6 hours a week and 312 hours a year, and two hours a day means 12 hours a week and 624 hours a year. What an aggregate! What a power for good or for evil!

"Think of what you can do for your own advancement with all that personal overtime at your disposal! With the country-wide spread of evening educational and training courses of all kinds for the man employed during the day, it is only the man himself who is at fault if he remains mentally stationary year in and year out.

"In my own circle of acquaintances I know a vice-president of a big lumber firm who was once a planer in a saw-mill; a cashier of a trust company who was once its messenger; a bank presi-

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dent who was once a typist and stenographer; a successful lawyer who was once a truck driver; a doctor with a specialist's practice who was once the proprietor of a cheap stationery store; a college professor who was once a night telegraph operator; a civil engineer with a consultant's clientele who was once a dry-goods clerk; an architect of wide fame who was once a stone-cutter; a certified public accountant who was once a 20-dollar a week bookkeeper; and a United States Senator who was once a newsboy and bootblack.

"And what is perhaps even closer to the point, I can name hundreds of men in the business and the professional worlds today who have already won success only a little less exceptional because they have made their personal overtime their servant and not their master.

"It is not difficult to set forth at least some of the rewards of the intelligent utilization of one's personal overtime. First of all, there is the matter of financial reward. The better trained the man, the greater the demand for his service, and the larger his salary. In the second place, there is the reward of a righteous self-satisfaction at a worthy success worthily won—the satisfaction at being spared the ignominy of vain regrets beginning with, 'I had the chance but—,' 'or if I hadn't been a fool, I'd—' And lastly, there is the satisfaction reward of having rendered a measure of real service to humanity in general—the satisfaction of having done something to lighten the load on the other fellow's back and to kindle again the light of hope in his eye.

"Isn't it worth while—this matter of thinking seriously about your personal overtime, young man? Where do you expect to be in the business world to-morrow, next year, five years from now, ten, twenty, thirty, when your shoulders have begun to droop and your legs have lost their spring and you find yourself every day looking forward to settling your tired body in the easy chair in front of the crackling fire on the hearth? What are you doing to ward off stagnation, deterioration, final and downright failure?

"How are you equipping yourself now in the days of your youth to climb the ladder of success rung by rung? Wherein are you better fitted this month than you were last month for that position ahead which you seek, because its salary is so much better than what you are now getting? Think about these things, think about them hard. And when questions beginning with 'How,' surge through your mind, see if the answer to them all isn't 'my personal overtime.'"

Personal Questions. Now permit me to make a very personal recapitulation of the thoughts that I have laid before you under the title of "Personal Business Assets." Let the recapitulation take the form

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of eleven pointed questions:

1. What are you doing to help solve the personnel problem of the Doherty Organization in its dealings with the purchasing public?
2. To what extent are you exemplifying the cooperative spirit of the Doherty Organization in your daily contacts with your associates?
3. Have you fully grasped the service-rendering ideals of the Doherty Organization?
4. Are you systematically keeping yourself in good bodily and physical condition in order that you may increase your usefulness to the Doherty Organization?
5. Are you positive that you are unswervingly loyal to the Doherty Organization in everything that you say, do, and think, not only in the office but everywhere else?
6. Are you trying to develop initiative by doing your daily work in the Doherty Organization in the spirit of inquiring effort?
7. Are you making a systematic effort to get a broad view of the manifold activities of the Doherty Organization and their interrelations?
8. Are you thinking intelligently and constructively about the problems, technical, selling, and administrative, that face the Doherty Organization?
9. Are you visualizing some of the aims and objectives which the Doherty Organization doubtless has in mind or might properly have in mind?
10. Are you planning to take developmental courses of study that will increase your usefulness to the Doherty Organization and thereby insure your advancement?
11. Have you given any intelligent thought to apportioning your spare hours in such a manner that, while having plenty of time for work, sleep, and legitimate recreation, you still have some time left for self-development?

If you can answer the above questions truthfully in the affirmative, you are already on the highroad—and probably within the Doherty Organization—to increased capacity, increased usefulness, increased opportunity, increased income, and increased happiness.

CHAPTER TWO

HEALTH OF THE WORKER

By HELEN McKINSTRY

Director Department of Physical Education,
Central Branch,
Young Women's Christian Association, New York City

Introduction. Observation and hearsay lead me to believe the Doherty Organization is a democracy—an Organization where responsibility begets freedom, personal success comes with service, and happiness is the net result.

From one of your Tuesday addresses by Mr. Drury, on "Personal Business Assets," I have listed those assets in the order in which he gave them:

1. Physical Health.
2. Loyalty.
3. Initiative.
4. Broad Perspective.
5. Reasoning Power.
6. Imagination.
7. Self Development.
8. Use of Personal Overtime.

In introducing the lecturer, Dr. Fuld said: Whether we are men or whether we are women, our first instructor in personal hygiene was our mother. And in every household in the country the health of the worker is in the hands of the wife and mother of the household. It is, therefore, entirely fitting and proper that when we seek authoritative advice on health matters, we should turn to a competent woman rather than to a man for it.

There are many people who offer advice on health matters. Many of them know so little that most of us know more than they do. Some of them know so much that we seem unable to understand what they try to tell us. Several years ago those who are professionally interested in health matters observed the work of a young woman in one of the schools in Brooklyn, whose activities were characterized by such broad sanity of conception, coupled with such great practicality of execution, that straightway in true Emersonian fashion a pathway was cut through the woods of Brooklyn to the doors of her school. She was not permitted to remain long in that school. She was called to the Young Women's Christian Association where she is now directly influencing the physical welfare of ten thousand women annually.

The Doherty Organization is fortunate and the Doherty Organization is proud to have with it to-day Miss Helen McKinstry, Director, Department of Physical Education, Young Women's Christian Association, New York, who will speak to us on "The Health of the Worker". Ladies and gentlemen, Miss McKinstry.

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My task this afternoon is scheduled to deal directly with the first of these, but as I conceive health—positive, vitalized, electrified health and not mere negative “absence of disease” health—it cannot be disassociated from practically all the rest of Mr. Drury’s listed assets.

It is very near that first day of the year when we all make marvelous new resolutions and greet our friends with wishes for health, success and happiness. My vision of health is so great I could leave out most of that and sum up all my ardent desires in the one word “health”. I should get out of my depth very quickly if I tried to talk electricity, but the difference between the health of mere physical soundness and the sort of health I am thinking of is the difference between a perfectly made piece of wire, dead and alive. Health is physical soundness electrified by an imagination so vivid it lights up life in all its length and breadth. Light is of very little use unless there is desire and initiative and intelligence to make the greatest possible use of it, in the spirit that Josiah Royce used to call “the spirit of loyalty to loyalty” or “fair play”. So you see I have covered all of Mr. Drury’s assets by my one word “Health”, not because I have the intention or ability to discuss them, but because I would like to be able to show they all are to a great extent dependent upon a body that is well built, poised and cared for.

Garfield once said “If the power to do hard work is not talent it is the best possible substitute for it”. A week ago I heard Dr. Haven Emerson say that 90% of the ills that come to the doctors’ attention are self-controlled and self-limited. I should like to give as a text for my talk a somewhat garbled combination of these quotations to this effect—that the dearth of talent in the world is largely due to the lack of power to do hard work, traced back to the lack of intelligent self interest and self control that makes a man or a woman satisfied with far less than 100% vitality or with little more than an ability to “sit up and take nourishment”.

Dr. Lyman Fisk prefaced a recent address that included an avalanche of statistics by saying that “now-a-days statistics could be made to support everything except a family”. I could give you statistics that in quantity at least would support much, but my text is perfectly illustrated by the draft returns alone. Of all the draft 34% were rejected and 62% of the accepted men were found on examination at camp to have notable defects. Unfortunately we have no wholesale estimate of the condition of the women of the country to use as a whip lash to their indifference. Of the one unit of army nurses, however, that I examined a year ago,—nurses in their uniforms and scheduled for France, dead or alive,—I longed to save the Government the time and expense of taking a good 10% of them across.

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Ignorance and Indifference

At the bottom of a great part of all the lost life and energy and happiness of the world lies a profound ignorance of the body and indifference to its care. Knowledge of anatomy and physiology possessed by the average so-called intelligent and educated male or female member of society is about as graphic and accurate as the answer I once received to the question "Name the parts of the body that assist in the process of digestion". This was the answer—"The bowels, the stomach, the lungs and the blood vessels. The bowels regulate the food, the lungs pass it on to the bowels and the blood is what the food goes through."

As the first requisite to health, therefore, I will place knowledge of the human machine we each one of us possess, in order that we may control or limit the 90% of the stallings and break-downs we now tow off to the doctors. With the 10% of human ills—to quote Dr. Emerson—that are not self-controlled and self-limited, the doctors alone can deal, so it is obviously a waste of time to consider them here. Concerning neglect and indiscretions of diet, exercise and rest, the papers, magazines and book stores are stocked with information, much of it good, much of it of questionable value, but accessible at least.

Anatomy of Inefficiency

It is to some of the defects and deficiencies that I am listing under the heading of the "Anatomy of Inefficiency" that I wish to call your attention this afternoon. If a machine is not carefully constructed in every part and properly set up, it fails to run, or runs with great friction and waste. If the adult human body is poorly built, not through any fault of the architect, but because of ignorance and carelessness of the contractor-builder-owner, we get an inefficient product guaranteed to do far less than 100% efficient work.

Defect No. 1. Construction Too Light or Too Heavy

The Life Extension Institute statistics of industrial and commercial employees show 6% with extreme underweight, and 5% with extreme overweight. Life insurance companies find that between the ages of 20 and 34 mortality is lowest among those who are from 15 to

20 pounds overweight. Between the ages of 35 and 49 the death rate is lowest among those who are from 5 to 10 pounds underweight.

The person who is much underweight usually suffers from faulty nutrition. The body lacks packing and support and protection for the organs that a normal amount of fat supplies. Such a person is usually nervous and tense and has little endurance. He tires easily and worries a great deal.

The person who is much overweight is inclined to be functionally sluggish, with oxygenation, elimination and metabolism usually deficient. Such an overweight human machine lacks power unless it has a large lung capacity and unusual strength, or in other words, this sort of machine will not run well uphill unless it has an exceptionally good engine.

Defect No. 2. Poor Engine—Muscular Weakness

This may not be an altogether happy comparison, but inasmuch as muscle does all the work of the world—to quote Dr. Hall, “has built all the cities, written all the books and spoken all the words,”—the engine of the machine seems to be fairly comparable with the muscle tissue of the body. Muscle tissue makes up 41% of the total body bulk, and it obviously was intended to be used to a far greater extent than about 99% of us use it today. Part of the muscle tissue is under the control of the will, the voluntary muscles. Some of our muscles are not so controlled, the involuntary muscles such as heart muscle and the walls of the blood vessels and intestines.

For those of us who spend most of our days at desks, powerful muscles of arms and legs are perhaps not necessary, but moderately well developed muscle is. Well balanced, controlled and developed voluntary tissue is necessary to secure strength and control of the involuntary muscles. Other things being equal, the less muscle strength the greater the drain on nerve force.

The really important groups of voluntary muscles that must be strong are those of the trunk—of the back, abdomen and sides. You are as strong and no stronger than the weakest spot in your back. How strong your back happens to be and where the weak spots are to be found can be determined by asking someone to push you forward by a gentle pressure up and down the spine. There will probably be one spot, let us say, in the lower back, where the spine gives easily even to a gentle but firm pressure. The person with a weak back almost always has a very tense neck with shoulder muscles sore and sensi-

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tive to pressure. If he is doing more than he is equal to, you will invariably find his shoulders are carried high and fixed by tense and contracted neck muscles. His nervous system aided by the muscles of the shoulders and neck is endeavoring to relieve the strain on his back and the result is tension and stiffness and soreness through the shoulders and a boring nervous pain under the shoulder blades.

If the abdominal muscles are weak, insufficient external support is afforded for the large abdominal organs. With relaxation and stretching of the abdominal walls there is sagging and displacement of the abdominal organs. The normal location of the stomach is well up under the ribs on the left side, but this can be changed to a point anywhere from one to four or six inches lower down. Is it any wonder that such displacement of stomach and intestines results in constipation, indigestion, headache, backache, and a feeling of utter unfitness?

If the muscles of the body as a whole are untrained, noticeable awkwardness and lack of co-ordination almost invariably result. The awkward man is extravagant in his expenditure of strength because in his awkwardness he is indirect in his movements and inefficient.

Is there any real connection between muscular and mental strength and power? Dr. Stanley Hall has called motor ability the best test of educational power. When you stop to think of it, are not a man's movements rather indicative of the way he thinks and acts? For example—the man who moves slowly acts deliberately. Another moves quickly, thinks quickly and is equal to emergencies. The third moves heavily and he is more or less relaxed physically and thinks ponderously. The man who moves with jerky, agitated movements is inclined to be nervously constituted and unpoised, and he of careless, incomplete movements is he not apt to be careless also and inaccurate in his thinking and his work?

A weak grip is perhaps most closely correlated with a weak mental grasp. Mental defectives, delinquents, incorrigibles and truants all have a physical grip below average. The mentally defective man cannot grip the hand dynamometer as hard as can a small child, but he can wheel a barrow filled with heavy weights. He seems to lack the power to close the thumb on the fingers—to make a compact fist. Have you ever thought how much your liking or disliking a person on first acquaintance depends upon the way he shakes hands? The stranger with a weak clammy hand shake—are you not at once suspicious as to the quality and quantity of his mental and moral fibre?

Defect No. 3. Defective Combustion Chamber and Air Regulating Mechanism—a Poor Chest.

The average woman should have a lung capacity of at least 160 cubic inches, as shown by the spirometer. The average for men should be well over 200—(225 to 250). In ordinary breathing it is estimated that only about 10% of the lung tissue is used. This estimate is graphically proven by statistics crediting tuberculosis with nearly one-half the total death rate. A woman uses the upper part of her chest the most, while a man breathes more with the lower part. As a result tuberculosis usually starts in the lower lobes of a woman's lungs, and in the upper lobes of a man's.

Too frequently, breathing means little more than hoisting the thorax up and down by the neck muscles. This type of breathing results in a rigid inflexible chest and in a diaphragm that is used but little, sluggish circulation with congestion, evidenced by a sensitiveness at the end of the sternum or breast bone, prominent collar bones, and a tense scrawny neck. The body must have sufficient air and without it its efficiency is lowered in a way very comparable to that of a machine with a defective combustion chamber and dampers. There seems to be very good reason for believing that breathing and thinking are not entirely unrelated. A developed and controlled chest gives vitality and physical endurance above average. With a strong flexible chest we usually find initiative, a sense of responsibility and marked qualities of leadership. On the other hand one of the striking physical characteristics of the mental defective is a small lung capacity and inflexible chest. Types of breathing are closely related to mental states, and each seems strongly to affect the other. If you are frightened you catch your breath; if you are sad you sigh; if agitated, breathing is jerky and rapid; if you are calm and happy, it is slow and deep. Since mental states do affect breathing, is it not safe to conclude that the opposite to some extent may hold true—that one's habitual type of breathing may affect and determine his mental states. In the Orient, slow, deep breathing has been used for centuries as a means towards cultivating poise and control. The Greeks and Romans laid great stress upon breathing, and one of the regulations recently laid down for our own Army was that emphasis be placed on correct breathing.

For the past several years, I have been following a suggestion given me by Mr. Adams of the Adams Place Sanitarium in New Jersey, in tracing the relation between initiative and self-confidence and the physical development of the lower chest. This lower chest development we have been testing by measuring the width of the sub-costal angle, i. e., the angle made by the slant of the ribs away from the median line, using the end of the sternum or the breast

bone as the apex. You can easily find the size of your own angle by standing before the mirror undressed and running your fingers down the edge of the ribs. It is extremely interesting to note that those of the women we have examined who are holding important executive positions in the city, have without exception had angles of from 45 to 90 degrees. We invariably find small angles of 22 degrees to 45 in women who apparently have little initiative or desire to possess it—those who are doing routine work.

I am usually asked in this connection whether it is possible to increase the size of this angle. It most decidedly is, and a comparatively easy thing to do. There are a few very simple exercises that are most effective, but the essential thing in correcting any of these defects I am speaking of, is a thoughtful interest in and desire for the correction, that keeps one conscious and alert to use every possible means at hand. One of our students at the Association increased her angle from 22 to 45 degrees in one year's time, and—call it coincidence if you choose—during that year she was promoted from a routine position and placed in charge of the office. Make deep breathing a habit, breathe consciously with the lower part of the chest, and without lifting the chest by the neck muscles.

Defect No. 4 Flat Wheels—Weak Feet

Examinations of industrial and commercial employees made by the Life Extension Institute, show that 21% have flat feet. The draft examination disclosed 176,000 men suffering from flat foot. Again unfortunately we have no wholesale statistics on the condition of the feet of women. In the December 1919 Ladies Home Journal, however, there is an article entitled, "Wanted: A Shoe," by Elizabeth Sears, from which I have taken these statistics. During the year 1916, 1,149 women in the United States were killed by high heels. These fatalities were all caused by catching high heels on stairs and falling headlong. From the same cause over 4,000 others were crippled during the same year. The American Museum of Safety states that 90% of the civilian population have feet more or less deformed from wearing improperly fitting shoes. Shoes, of course, lead all other causes of foot trouble. Standing for hours at a time on hard floors, walking—especially if walking incorrectly in a toeing-out position, on pavements—and general muscular weakness and debility that is also shared by foot muscles, are others of the common causes. No one who has ever had trouble with his feet needs to be told that such suffering affects efficiency. The crop sown by tight and badly fitting shoes results in an all too abundant harvest. Callouses, corns and bunions are minor ailments, however, as compared with the suffering that attends fallen arches.

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A large percentage of backache and sacroiliac strain are caused by bad feet. These in turn are almost always caused by badly fitting and high-heeled shoes.

Defect No. 5. The Machine Incorrectly Set Up—Poor Posture

Whatever walk in life each one of you has chosen, you register the profit and pleasure you are finding along the way by your posture, and in your gait. Good posture has hygienic, aesthetic and economic value.

Hygienic. The organs of the body are put together like parts of a machine. If there is any shifting of their position caused by an unpoised carriage, they fail to do their work in the most efficient manner. The results are eventually troubles of faulty digestion and circulation, waste of energy and strength, with fatigue coming early in the day. Statistics of the Life Extension Institute show that 44% of commercial and industrial employees have faulty posture. At Harvard University a few years ago, the examination of over 700 men, and at Teachers College, Columbia University, the examination of 400 women, gave practically the same result—8% of faulty posture. Not so many years ago a good posture was valued merely as a thing of beauty and a joy forever. Now, the best medical and surgical authorities are agreed that physical harm always results from poor posture, shown in decreased health, vigor and efficiency. The causes of poor posture are numerous. Chief among them are—

1. Weak muscles of the trunk.
2. Poor furniture—uncomfortable desks and chairs.
3. Incorrectly made clothing—constricting coats, suspenders, waists and garters.
4. Weak feet and bad shoes.
5. Bad habits of posture resulting from the careful following of incorrectly given early instructions.

Ask the average person to describe good posture, and he will say something like this—"The head should be up, the chest out, the shoulders back, and the weight on the balls of the feet." Have you ever tried to follow that advice? Try it. You will find the position to be one of great unnatural strain and the body is entirely unpoised. When the body is in good posture it is absolutely poised, there is no strain or evidence of it, and the least possible muscular effort is needed to keep the erect position. The result gives an impression of self-control, self-respect, efficiency and health.

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Economic and Aesthetic. If the previous statement is correct, good posture must have important economic value. In talking recently with a celebrated efficiency engineer, he told me the first thing he does on beginning his study of a plant, is to note the standing and sitting posture assumed by employees. By making them more comfortable at their work or making it possible for them to stand and sit naturally, their output is greatly increased. An employment manager in the city when wanting a speed typist, goes to one of the business schools and asks that the candidates be sent to do work standing at the blackboard. He chooses his girl from watching the backs of the class as the girls write. The class instructor tells me this man has never failed to pick the most rapid typist in the room. The director of a large school was recently in search of a secretary who could reorganize an important piece of work. She went to a well-known secretarial school and asked to see candidates. She told me the first three who were recommended to her she rejected before speaking a word to them. As they came toward her across the room their posture and carriage were so poor she felt perfectly confident they were either physically or mentally unequal to the job.

Posture, Economic Value and Efficiency.

Let me read an extract from a letter written from the Adjutant General's office at Washington, on August 28, 1917. "Perhaps the most glaring fault noted in aspirants to the Officers Reserve Corps, and one that might be corrected by proper attention in our high schools, preparatory schools and colleges might be characterized by the general word, 'slouchiness.' I refer to what might be termed a mental and physical indifference. I have observed at my camp many otherwise excellent men who have failed because in our school system sufficient emphasis is not placed upon the avoidance of this mental and physical handicap. At military camps throughout the country mental alertness, accuracy in thinking and acting, clearness in enunciation, sureness and ease of carriage and bearing must be insisted upon for two reasons—that success may be assured as nearly as human effort can guarantee it with the material and means at hand, and that priceless human lives may not be criminally sacrificed. Only by the possession of the qualities referred to does one become a natural leader."

When we analyze posture from the standpoint of health and character and not merely as indicative of the prevailing fashion, it is an indifferent and callous person who is willing to continue complacently publishing his or her deficiencies to the world through posture and carriage.

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Walking Advertisements.

The **successful person** has a poised, balanced, unassuming posture that commands confidence, respect and admiration. The erect posture suggests power, ability, generousness, buoyancy and uprightness of thought and action. In slang phraseology "he is no slouch".

The **bluff** has a bantam posture, forced and tense, with a pompous imposing chest - "chesty". This posture suggests that you pay attention to the chest, and it might be construed to mean "please don't look within".

The **weak** but **aspiring** individual has a sagging back and receding chest, but an up-tilted chin.

The **indifferent** and **frivolous** stands with a sag and a twist.

The **derelict** has relaxed and drooping shoulders, and a receding chest. His is a typical slumped and relaxed posture. "Life has put the crimp in him".

The **criminal** has a crouching posture, restricted and tense, but with receding chest.

The **idiot** is unable even to stand.

The gait of these various types of individuals is also suggestive.

The **successful** man walks with a firm, free, springy step. "On top of the world".

The **bluff** has a heavy impressive strut.

The **weak** but **aspiring** a timid, apologetic gait.

The **indifferent** and **frivolous** has a sinuous mincing walk.

The **derelict** shuffles with a slow, heavy step. What's the use of even lifting his feet, he is down and out.

The **criminal's** gait is furtive and slinking.

The **idiot** rolls or creeps. He is part of the earth.

Conclusion.

Well, what can we do about it. What chance of correcting these defects has the busy man or woman who thinks he or she hasn't

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time for exercise or for making definite and specific attempt at correction.

Weight. Keep watch of your weight. Any slot machine that is fairly correct will do. Eat suitable nourishing food, neither too much nor too little. If you are underweight get all the sleep and good food and relaxation you can, and avoid excitement. If overweight, be careful of your diet and walk to the office.

Strength. The best method and most rapidly successful one to increase strength is to go to a gymnasium and ask for suggestions as to the specific types of exercise you need to strengthen your weak spots.

Chests. "The reason why a chest is not as it should be are usually to be found outside of the chest." according to Dr. S. S. Bradford. This being most true, the place to start correction of the chest is by strengthening the back that supports it, and the abdomen that must be normally strong to prevent a downward pull on the chest. In practicing breathing be sure that the chest is expanded laterally and in its anthroposterior diameters and that the diaphragm is brought strongly into play. Stand before the glass as you practice your breathing exercises and make sure your chest is not lifted by your neck muscles. Most important of all, **think** about breathing deeply, especially when out of doors. **Make up your mind** to increase your chest expansion, and it is already half done.

Feet. Be sure your shoes are correct. The same shoe will not fit every foot, but all good shoes must have a straight inner line and a low heel. When you are walking, point the toe straight ahead or even toe in a little, and throw the weight on the outer borders of the feet. If your feet are in bad condition they will also need special foot exercises. These can be gotten very easily from practically any gymnasium.

Posture. Strengthen the weak muscles of the trunk. Stand and sit as tall as possible. Train the muscle sense of good posture before your mirror. To do this, be sure first that the weight of the body is on the whole foot and not on the ball. From the feet up, lift the body in a straight line so that one body segment is directly above another. The axis of the body from head to feet should be a straight line. Hold the chest **high**, not **out**. Hold the head high with the chin in. The abdomen should be flat. The hips should be directly

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under the chest, not tilted forward, nor sprung backward. Let the arms hang naturally at the side. When sitting, sit far back in the chair and do not slide forward and down in the chair. The feet should rest comfortably on the floor. Be sure your desk is at the right height so that the shoulders are not held high while you are working there. Lean forward from the hips and do not collapse at the waist. In selecting your clothing be sure that you have nothing that binds or constricts. If there are bands over the shoulders, have them come near the base of the neck and not over the tips of the shoulders. Many ready made clothes for men have been, and are still built over round backed models. On a normally built person such a coat is too loose in the back and too high in the back of the neck, and so tight across the chest it pulls the shoulders forward and down.

None of the defects I have mentioned this afternoon are impossible of correction. In fact, most of them may be corrected with comparatively little effort and time. One thing that is absolutely essential to their correction, let me repeat, is that you interest yourself in putting these things to the test, and trying them out. With the interest and will to correct them you will find opportunities dozens of times a day for thinking and doing simple, constructive, corrective things that will in a few months bring such satisfying results you will never again need convincing of the importance of a sound and controlled body, and the possibility of its increasing your success, health and happiness.

CHAPTER THREE

GENERAL PLAN AND DESCRIPTION OF THE DOHERTY ORGANIZATION.

By FRANK W. FRUEAUFF,
of the firm of Henry L. Doherty & Co.

Mr. Doherty's Early Days. Mr. Doherty told you last week that he had been in this business since he was a small boy. That is literally true. Mr. Doherty went to work for the Columbus Gas Company when he was between twelve and thirteen years old; his job at that time was office boy around the gas works office. His duties there were very general. He added to those duties, as his friends like to tell, a very great fondness for helping to take care of the stable. Mr. Doherty has always been a horse fancier, as the result of the leisure hours he spent out there in the barn talking with the hostlers and the men who handled the coke wagons and had charge of the horses.

I often think of the experiences Mr. Butterworth, who was Mr. Doherty's first chief in the gas business, used to tell of Mr. Doherty's early days, and what an impossible boy he was to keep at some sort of a task. The things he was thoroughly keen about he was tireless in learning; for the things that did not interest him he had no time.

But Mr. Doherty was the sort of boy who early in life commenced to realize that he was not making the progress that he should, and

In introducing the lecturer, Dr. Fuld said: "When a man begins the study of medicine the subject to which he devotes the most attention during the first year, and the subject which gives him the most trouble, is that of anatomy, the study of the structure of the human body. Yet we enter the business world from the public school, the high school, the college or the university without any knowledge of the structure of the business world. And even after we have gained in the hard school of experience some knowledge of business conditions, we know almost nothing about the structure of the particular organization with which we are serving. Nor is it easy for us to supplement this deficiency. There are no institutions which offer courses of instruction in this subject; and it is not easy for us to get literature from which we may gain this knowledge.

To supply this real want, Mr. Frank W. Frueauff has consented to address us to-day on the General Plan and Description of the Doherty Organization, the anatomy of the Doherty Organization. Ladies and Gentlemen, Mr. Frank W. Frueauff."

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he literally burned the midnight oil in his study of the problems in the manufacture of gas. That carried with it a study of the engineering problems, and of the chemistry of gas, and he perfected himself through the spare hours and became eventually the engineer of that company. The chief financial interests in the company were controlled by Mr. Emerson McMillin, now of New York, and head of the American Light and Traction Company.

At Madison and Denver. From the Columbus Company they commenced to absorb, as we did in later years, other utilities around the country and appreciating the experience Mr. Doherty had obtained in the gas works, they sent him out on an investigation of other properties which they later bought. One of these was the property at Madison, Wisconsin, where the University of the State of Wisconsin is located, and Doherty there evolved the plan which you see carried on now, of taking in young men who have had a college training and giving them some practical experience. From Madison he went to St. Paul, but was there only a short time. He then made other engineering investigations for the McMillin people and in the winter of 1898 came out to Denver to examine the two properties operating there, the Denver Consolidated Company and the Denver Consolidated Gas Company. As a result of his report those companies were bought by the McMillin interests and consolidated into the Denver Gas & Electric Company.

He then returned east and the properties were operated under the combined arrangement, but soon got into trouble. They were operated in the old way of the public could like it or not. If a man wanted electricity he could come to the office and get it if he waited a reasonable time; if he had complaints to make about the service or the size of his bills he was treated with indifference. Out of that grew a demand on the part of a lot of people for an opposition company, and the Lacombe Electric Company was the outgrowth of that antagonism toward the older company.

Denver Receivership. When things became very bad and this new company had actually financed itself and had built its plant and commenced to make inroads in our business, Mr. Doherty was sent back by Mr. McMillin and was made the President of the Denver Gas & Electric Company, and later, on his recommendation, the

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properties being put into a receivership, he conducted the companies as receiver. I was then the secretary of the company and afterwards the manager.

Evening Meetings. Those early struggles to save that property gave birth to many ideas since crystalized into what is going on in the operating companies, of which many of you only hear indirectly while located in the New York office. Evening meetings were started; the men were encouraged to come to the office at night and talk over the problems they had encountered during the day. The commercial department was started with the idea of trying to hold the present consumers of our company and to try to get back many of the people who had gone to the opposition company; also to try to get new people to use gas and electricity. Those evening meetings were of a most interesting nature. The men would come back and report results and the rebuffs or discourtesies they had received in their calls; they would report the business actually closed and report generally troubles that they found. In these discussions many helpful suggestions necessarily came out and the tide gradually commenced to swing when the public realized there was a definite change in the mental attitude of the management, that the company was out to win friends instead of ignoring its customers.

Doherty Rate. The opposition then commenced to realize that after all it was a struggle for existence. Our rates were made just as low as need be to encourage the consumers to come back to us, but in the making of those rates real thought and attention and study was given to making a rate that was worth while, and the so-called Doherty rate was put into effect about that time.

This rate, about which some of the speakers later in the course will go more into detail, resulted in our being able to distinguish between the profitable and the unprofitable business, and that brought back to the company the consumers whose business was worth holding and kept away from our company and left with the opposition company those small users, those short-hour users, those users with a high demand and a low consumption that were unprofitable at the rates named by the opposition.

The Lacombe Company finally had to take the court. I say that literally. Their credit was exhausted, they had been adding consumers on their books but were decreasing their income and consumption

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of current, and their backers finally had to close in on the promoters of the enterprise and take it over. Later on it came into possession of the Denver Company and has since been operated as an adjunct of that company.

American Light and Traction Company. That carries my story up to about 1904 or 1905. In that period between 1901 and 1904 the American Light & Traction Company was formed, and while Mr. Doherty spent a great deal of his time in Denver carrying on this fight, he was still interested in and participated in the forming of that holding company. They gave some consideration to buying the Denver Company as they had the St. Paul and the Madison, Detroit, Milwaukee and other companies, but concluded that its troubles were too intense, its possibilities were too uncertain for them to want to acquire it, and they never bought the Denver Company.

Henry L. Doherty & Co. In 1904 and 1905 Mr. Doherty had been turning over in his mind, needless to say for a long time, the idea of going into business for himself, and in 1905 the firm of Henry L. Doherty & Company was formally launched. The offices were taken in the building which we still occupy, and we had at that time the offices in the Pine Street end on the fourteenth floor. The staff, which now numbers between five and six hundred, then totalled seven, and the properties, which now total one hundred and twenty odd, then consisted of a portion of the stock of the Denver Company which had been acquired by Mr. Doherty and some of the Denver and Columbus people who believed in his methods and were prepared to back him with their capital.

Gas Securities Company. From the acquiring of control of the Denver Company, through the investment of some of these friends, and their investment in some of the stock of the American Light & Traction Company, our first financial company was formed, the Gas Securities Company, and the capital that company had to carry on its business was obtained by the exchange of Denver Company stock and American Light & Traction stock for its stock. With those collaterals available the company was then able to raise money and it commenced to acquire properties. The Montgomery Alabama property, the Lincoln property and one or two of the smaller ones were acquired about that time.

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As these various steps were taken the New York organization grew, for each property brought with it the need of keeping additional records of the happenings in the other properties, the need of raising capital for their growing demands, and, in short, the need of further support and help and encouragement and advice from New York.

Cities Service Company. From that beginning in 1905 other properties were acquired separately, until in 1910 the plans were laid and carried into execution for the formation of a holding company. Assuming that some of you are not altogether familiar with what a holding company is, I will simply say that it is one which acquires the stock or securities of other companies, and carries those in its capital account, and the investors in the holding company in turn have for their investment the stocks or bonds of the larger companies. The purpose, primarily, for the formation of the holding company is to enable the company to raise capital and in some cases it is the only way to raise capital. In others the purpose is to raise capital on the best terms, for use in the properties which it owns. For instance, in the early days some of the companies like the Empire District Electric Company were not able to raise all the capital for their needs by sale or loans against their own securities. It was necessary, therefore, for the holding company to sell its own securities and advance the proceeds to the Empire Company, taking their securities and putting the money to work in the properties.

That practice has grown and has resulted in a great many of the companies borrowing their money through the holding company, while others, having a long established credit, with a record of successful operations and profitable results, are able to sell their securities direct to the investors and carry on their construction program that way.

Natural Gas and Oil. Until 1912 the operations through the holding company, the Cities Service Company, consisted in the operation of the Denver, Empire District, Spokane and so on—all gas, street railway, and electric light and power properties. At that time the gas properties were artificial gas properties. In 1912 we commenced to acquire some natural gas properties, and we had some oil acreage and a small amount of oil production. The properties acquired were the control of the Quapaw Gas Company, the Wichita Natural Gas Company, and the majority of the stock of the Indian Territory

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Illuminating Company, which was a company that had a lease on a large amount of Indian lands in Oklahoma, was producing gas and selling it to the Quapaw Company, and producing some on its own account and selling it to other pipe-line companies. With the acquiring of these different companies it became more and more necessary to draw in new capital, and commencing as early as 1911 we raised some of our money, in addition to what was raised through the sale of securities here, by arrangements with banking houses in London. Those arrangements continued until the war clouds gathered in the spring of 1914, when the Balkan troubles commenced, and were ended by the commencement of the real World War in the summer of 1914.

British Holdings of Preferred Stock. So that, when war came on in the middle of 1914, a little over one half of all of our Preferred stock had been sold to English investors, the smaller half being held by investors in this country. The British treasury put into effect some of its wartime regulations and among them was one that various types of American securities, being good for loan or sale in this country, must be given up by the British holders who were given their choice of either selling their American securities—Cities Service Preferred among them—or depositing them and loaning them to the British Government, taking in exchange the war debt of Great Britain.

That resulted in our having a very large amount of stock that had previously been sold the British investors come back to this country, and one of the most active and heroic jobs that our Bond Department ever put through was to find a new market in this country for securities which had already been sold abroad.

Financing New Properties. Through this period just prior to the War—that is, from the latter part of 1912 up until the end of 1913—we had contracted through our arrangements with these British bankers for a great many properties, oil properties, gas and electric properties such as St. Joe and Athens, natural gas properties, extensions of the Wichita system, and so on; and in 1914 we had a considerable amount of financing to do to finish payments needed for the acquiring of these companies, which our British bankers were no longer able to furnish. That resulted for the time being in our suspending the payment of cash dividends to our stockholders, and

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the use of the earnings of the companies to finish up the payments on these properties.

That the judgment of our operators was well founded is evidenced by the fact that these oil lands and gas leases which we had held out west commenced to more than meet predictions, and as many of you know by the latter part of 1914 every one realized that the Cities Service properties out west were in a class by themselves and had a wonderful future before them. We were then able to finance an issue of preferred stock with a common stock bonus of the Cities Service Company, and pay for the balance of those properties, to resume dividends and to continue the development of the properties. All of these steps have meant bringing into our Organization, as each new property was acquired, a brand new group of executives with the assistants and staffs and employees under them, and one of the most interesting things that we have had to do is to try to make them members of the Doherty Organization. It is a pleasure to report that in most cases they have been keenly enthusiastic to become a part of the Organization, to learn the ways that have been employed elsewhere to get the results which have made our success commented on by other operators in the same line of business, and this has all in all helped to add a great deal to the Doherty Spirit.

Doherty Payroll. I obtained some figures today which I know are going to be interesting, and at this point I am going to recite them in line with what I have said as to the group. When the Denver Company stock was taken over the company had, all told, between three and four hundred employees on its pay roll; that is including the stokers, linemen, clerks, management and everything. The August pay rolls of the companies show that there was a total of eighteen thousand eight hundred and two employees and the pay roll for the month of August totalled \$2,115,000., or at the rate of a little over \$25,000,000. a year. The number of properties has grown from this interest in the Denver Company to a total of eighty one utility properties, including such subsidiary companies as some of them have, a total of twenty-six so-called oil companies and fifteen miscellaneous companies which have to do either with the oil or utility end or in some indirect way. The holding company, Cities Service Company, is directly and indirectly responsible for the affairs of one hundred and twenty-three corporations scattered in twenty-three States, in Canada and in

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Mexico, besides having marketing organizations for its products in most of the States, as well as in Europe and South America.

Man Problem. The most interesting problem that this expansion has brought about has been in the development of the men and women to keep track of the properties. In other words the man problem is the difficult problem and the interesting one. In the growth from the small organization which I reported a moment ago to this Organization of eighteen thousand eight hundred, more men have been needed for executive positions, and the training of more men for special engineering or salesmanship posts. This has demonstrated and justified the wisdom of those early meetings in the early nineteen hundreds at Denver. What is now the cadet or engineers' training course was started in Denver about 1904 or 1905, when Mr. Bump and one or two of the earlier or older men came out there as young graduates from some of the middle west universities and commenced to apply their engineering training in the day time in the departments of the Denver Company and at night met in these evening meetings and discussed with the other men and their foremen what they might do to improve themselves and better the results which they were getting.

It has been interesting to note that while the cadet class has grown steadily there never has been a time when we have not had a crying need for more trained men; and while it was all shot to pieces during the period of the war when these engineers gave their services to the country, we are gathering a new force now, and larger than we ever had before, to supply the need for trained men who can carry on some part of this load.

The oil department cries "We can use so many men of this or that calibre", such and such a department says, "We need a manager or secretary or some man here", and the question is really to find him. The openings are constantly before us, and the ones to fill those gaps are still not as numerous as we need to have them.

The whole purpose, therefore, of this kind of meeting or any of the meetings that we have either here in New York or in any one of these properties is to help solve this problem: "Where is the man or the woman for the place just ahead?" There used to be a time in days gone by when a good many foremen, managers or superintendents had an idea that they did not dare let a man just below them know all about the job, because they would work themselves out of a job.

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But you can literally say that this has never been true in our situation here. There never has been a time that it was not a satisfaction to know there was a man there under him to fill the bill, because that manager could be stepped up to advantage in some one of the other properties.

Responsibility to Stockholders. I want to say a few words too about our responsibility. We think of the Cities Service Company often times as our company, as in a sense it is, and I do not think we ever want to get that out of our minds. But if we are going to have a true feeling of the responsibility that we have in doing our particular part of the work the best we know how, and in looking ahead to see what we can do still better, we must realize that behind that abstract organization that we think of as Cities Service Company or the limited number of executives that we see around 60 Wall Street and in the properties, giving some direction or other, there is literally a multitude of men, women, children and institutions in the country who have put all or a part of their savings in one or another of these securities. We are pledged to see that the interests of these are kept safe and there is a duty upon us to see that such a return as is agreed upon is earned and paid them regularly and constantly.

Mr. Wallace went to a good deal of trouble in the last twenty-four hours to get me some data, and his figures surprised me as much as I think they will some others. It surprised me to see how many men, women and children have put their capital into the Doherty enterprises and for whom we are, therefore, working, and who are happy or displeased depending upon the results we are able to show them from the use of capital. In the way of stockholders, including the Cities Service stockholders and the Preferred stockholders of one or another of these companies that are out about the country, we have 29,963 or almost 30,000 men, women and children who have money in the stocks of these companies. In addition to that, in the bonds and in the debentures and in the notes of the companies that have been sold to the public there are 25,901, or a grand total of 55,764 people for whom we 18,802 people are working.

Now, I think we ought always to have that thought in mind when we think "Well, what is Cities Service Company?" It is 55,764 investors who have said "We believe enough in you people, in the gray matter you have in your heads, in the energy you have in your bodies,

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to put our money with you, believing that you can pay us interest on our bonds and notes, or dividends on our stock, if we leave it there."

You can take another step, too. The next thought we must have is that if this business is going to grow, in other words, if our utilities are to grow here in America, which means more money is going to be put into them, if our oil business is going to expand as we have planned to all parts of the globe, if it can be made more of a national organization than it is today, still further money will be needed to be invested there, and the one sure way of getting that money is to keep the investor satisfied.

So we can all perform a part of that task in giving a good account of our stewardship of the present funds, believing that that is the surest way to get those other needed funds. It would be useless for the executives to have these conferences you hear of from time to time, when new additions to properties are contemplated or extensions to the present properties are agreed upon, to consider and say we are going to spend this or that amount, or that million dollars, if we did not know with reasonable certainty that that amount was available or that we could put our hands on it when needed. We will always be able to put our hands on it when it is needed so long as we give a good account of what we have done.

The effect of that is cumulative. I cannot tell you from memory just how many Denver investors there were in 1905 who turned in their securities to the Gas Securities Company, but it was very much less than one hundred. So we can truthfully say that, those one hundred people in 1905 have become the 55,764 of today because of their belief in what has been accomplished and the way they have helped to spread the propaganda that a Doherty investment is a legitimate and safe investment, that it is carried on by an organization of people who are using their heads as they conduct their business, and who are looking to the future in being prepared to assume greater and greater responsibilities.

The Operating Properties. The nicest thing that the New York organization could experience would be to visit some of the operating properties and see what goes on in one or another of them that causes, what some may say, the humdrum or detail or drudgery of a lot

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of our duties; but to sketch briefly, for example, what goes on in just one of them may clear up some of the doubts or the wonders as to what our plan is of keeping a great big New York organization, big as it is and growing as fast as it is, busy and at it.

In the utility properties, for example, the City of Toledo is to be supplied with electricity. That means we have to have our power houses where men are employed to unload the cars, to fire the coal, to handle the dynamos, to build and maintain the lines, to read the meters, to collect bills, to bank the money and finally to pay to bond holders and stockholders the return on the money which is invested there. These various duties up to a certain point are entirely local, but they can be made more effective, we believe—I think we have demonstrated that—by having these operations carried on in a sort of harmonious way with other properties. In other words, the Denver results are compared with the Toledo results, and if the Denver Company is doing better than the Toledo Company, we should know the reason why and correct it. If the returns to the Denver stock are higher than the returns to the Toledo stock the reason can be found and, being known, it is up to us to try and better it.

Local Capital. The companies can always raise for their growing needs a certain amount of money locally, but it has been the experience of the past and probably will be for some time to come, that there are never enough local investors to furnish all of the new capital needed. There seems to be something hard to account for in the fact that many people invest their money, out of town who will not invest it in their native town; on the other hand, there are a good many people who will not place their investments outside of their city and prefer a local investment to a foreign one. But aside from that there has been a great deal of capital sent to these companies to supply the demands for more service made by the growth of the town they are supplying.

The Bond Department. New York is playing an important part in finding that money for them. In doing that we necessarily have to conduct our Bond Department, which will be described later on by one of the executives; we necessarily have to have our Banking Department to account for the receipt, expenditure or disbursement of these funds, and for payment of the coupons and dividends. We have

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to have the Engineering Department to take scrutiny of the recommendations which come in for the spending of various sums of money. We have our Transfer Department to make it practical and convenient for the holders to get their stocks transferred or make purchases in the New York market, where so many of these investments are made.

In short, the New York end of it is a great big clearing house for these companies which, in a sense, stand on their own feet but in another sense are as definitely tied to the other properties of which they are so vital a part, and vital to the Cities Service Company, and depend upon its treasury to such an extent that one cannot get on without the other. In other words, unless the properties do well the results which New York has to report to its investors are necessarily disappointing. Each one of these properties has its own staff and up to a certain extent has no more relation to the Cities Service Company than it would have to the United States Steel Corporation. They have their board of directors locally, their own managers, their own superintendents, carry their own bank accounts and do their own business in their own way. We in New York simply make suggestions and advise them as to what practices we have found would be the most desirable for them to employ. But when it comes to these comparisons of results they have to call on New York to have these comparisons sent to them. When it comes to raising new capital, we have to cooperate with them, and we are working, in a sense, for all these properties and they are reporting back to us with an account of their stewardship and the use they have made of the capital invested.

The Future. Mr. Doherty said a word or two about some of his dreams. I do not know that I could be more specific than he was along that line, except to say this, that the future of the Doherty Organization ought to be pretty well known by studying its past. Its past has been one of rapid growth but one which has followed, we believe, the same lines as the financing—has followed sound engineering principles, has gotten on well with the members of the Organization and the public with whom we deal, with the investors whose support we must encourage, and we, therefore, have three angles that we measure our problem by. Are we getting on well among ourselves? Is the Organization happy? Is the spirit what it might be? Are we getting on well with the people whose patronage is everything

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to us? In other words, if we do not give good service in Toledo and those power-users or householders are compelled to find some other service, or are so displeased with the service that they must in a way take from us, and are complaining, we are bothered there. In the same way if our investors feel that the account we give of the use of their capital is not showing them a steady and continuingly satisfactory rate of earnings, one of those three structures is bound to give us trouble. The successful organization is one that will get on with itself, get along with the outsider, and give a proper stewardship to those who furnish them with capital.

The fact that these utilities have done so well in times past, while they have had their sad days through this period of the high cost of the war and the early days of peace, but are showing now the effects of the study which the managers have given to their local problems in getting after rates, getting after costs and trying to bring back the operations to what they once were—shows us that there is a reason to believe that the utility business can come back in better shape than a good many of those who were worried about it were willing to admit. Most of these American cities are growing rapidly. The housing problem seems to be a problem in all of them, and that means, with it, that there are more and more people who would be users of our product if the housing facilities were made available. When these are made available we are bound to have demands on us for added service. That will mean the employment of additional capital to take care of those growing towns.

Oil Business. About the oil business, which has been the newest of what we might say are the new activities, you have heard so much that it is almost tiresome to go over it again. But we can see, looking ahead, that the oil business presents possibilities for those who have production and facilities for moving that production to the refineries and the markets, and promises a big success in the future. We see that this program has to do with the new vessels and the motor trucks and tractors, and all these things are going to be users of petroleum and its products. We have a big job cut out ahead for us, and we can make it as big as our force is willing to take care of. The American market is besieged now by foreign interests who are anxious to get American oil products. We can do our share of that as long as we look ahead and plan for it.

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Doherty Characteristics. I am going to say one other word about some of the things that we think have been rather peculiar to our type of operations. I think that fundamentally this matter of meetings has been something that has stood out always in our work. Whether it is a meeting to study the sales methods, a meeting to study an engineering problem, a meeting to improve the personal relations among ourselves, a meeting to stimulate the better efforts of the foremen in the plants, a meeting to show collectors better ways of getting in their collections than they have hitherto employed—all these meetings have been another way of saying, "We are cooperating all the time."

I think that that has stood out and has been commented on as much as any one thing we have done. Some of our engineering methods, like some of our methods of line construction, or early recommendations for the use of certain types of electric meters and transformers—some of our practice in the use of low pressure gas mains and district holders and so on have been novel in their day, but are more or less common practice today.

The matter of rates is a thing to which Mr. Doherty has personally perhaps given more time than any other branch of our business, and it was quite a source of satisfaction to have the Kansas Commission the other day announce that in their opinion the three-part rate, or what we call the Doherty rate, was the logical way to sell gas. It has been before the public for years and years, but it has taken a long time to break down the prejudice of a lot of people who would not think to the end of the chapter and decide for themselves which was the logical way to do it.

A Self-Contained Organization. Here in New York probably one of the novel things which we have been pressed for and by some criticised is the fact that we have been more or less a self-contained organization. That is, we have raised our own capital for our own needs; we have expended this capital which we have raised for our own uses; we have accounted for it through our own channels; and in short we have carried on the problem from one end to the other. Many of the banking houses in New York, as you know, simply make a business of raising capital for a customer. Our practice has been the raising of capital for our own enterprises, and we frequently have a visitor come in and say, "I have this or that enterprise

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and need this or that money." He will say, "I notice you people are successful in raising capital; on what terms could I work with you?" And our answer has always been "We are sticking to our own last, and the enterprises we have now are constant needers of new money for their growth and the opportunities that come to us for things which we will later on be responsible for make it necessary for us to confine ourselves to that one line."

But we have this advantage over some other banking houses. The people who buy our securities know we are going to continue to be responsible for the results of that investment. They may buy a security from some house or another, they believe it is all right, but once having sold it their responsibility for its worth ceases. With us, once having sold a security to the public, we must ever after look those people in the face and explain to them how that money has been used and how well the company employing it has prospered, and they have a feeling in that way that we give personal account of the money placed through us, which was really the money placed with us.

Furnishing Service. Now, this description I have attempted to give of the Organization has been rather haphazard but was simply intended to give you a few high spots on what we are doing, and to sum it up, we are simply in the business of furnishing service to a large part of the American public, service in the sense of public utility service in many towns, and service in the sense of supplying them with their needs for fuel and fuel oil and other lubricating oil petroleum products in many other cities. To do that we have an organization which is trained along a great many lines, and those who have succeeded most are those who have in a way tried to specialize along some of these lines. We started these afternoon meetings here to try to give some of you something to think about in the way of the possibilities that exist. Some of you may get some thought from this talk this afternoon that there is some part of the business which seems to present unusual possibilities. If I have imparted that thought to you, I will feel that this talk has been well made.

If I cannot give you any other thought than the one that you are a part of a great big organization, that you can make yourself a larger part of it, you can have a more intimate knowledge of all that goes on about it if you will attend these meetings and talk with the

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others in the various departments; and if you feel that after all there is no one in the Doherty Organization who is in a rut unless he wants to stay in that rut, and that sooner or later one of those ruts is the last place you would want to be in; that the opportunities are great in New York, they are great out among the properties, the possibilities for the future are going to depend on the same view that we have of things, the way we live and conduct ourselves, the way we study our problems and the number that we can master in the least possible time.

Rapid Growth. One criticism that you hear often times of the Organization is that we grow too fast. We do not grow too fast if we assimilate things that we acquire. In other words, if, after taking on these properties, we continue to get as good results and better, which is the thing after all we are striving for, we make no mistake in acquiring them. If we do fall behind in our results we have an organization of more or less trained doctors who can diagnose the case and apply the proper remedies. We have a foundation in this public utility business for doing a substantial business at a fair profit. We have in our oil business an opportunity for large profits. We have seen them reflected in our past results. You know that we have looked ahead so that what was accomplished in the past ought to be improved on for years and years to come. We have not been satisfied in our oil business to do what could be done in the MidContinental business, but our trained men are all around the world. We want our Organization to expand constantly. It will expand and it will succeed so long as we can have the sort of team-work of which we have had evidence so often in the past in some of our trying times, which can be made more and more enthusiastic the oftener we get together and talk out our problems. The oftener we ask questions, and the more keen we are to feel we are a big organization all out to satisfy these 55,000 people and make a whole lot of more 55,000's who want to put their capital to work under our direction, the better will our Organization expand and succeed.

CHAPTER FOUR

ORGANIZATION OF THE NEW YORK OFFICE

By FRANK L. BLACKBURN

Head of Statistical Department, Henry L. Doherty & Co.

Introduction. The facts which I have to enumerate to you perhaps might not be as entertaining as listening to a good lecture, but my understanding of the course here is that we are not attempting to give entertaining lectures, but to enlighten the employees of the Organization as to its workings.

I appreciate that there are large numbers of new members now among us who have been confined to certain departments, and perhaps, therefore, do not have a clear understanding of what is really going on in the New York Office.

I said that we appreciated that many here did not know what the work is. I doubt if it is appreciated even by the older members of the Organization. It was only a short time ago that the forces in the New York Office numbered less than one hundred employees. Now we have more than six hundred on the payroll, and I do not believe the older members realize the magnitude, the diversity of activities, or the volume of work that is going on in the New York Office.

In introducing the lecturer, Dr. Fuld said: Last week we had a most instructive address on the history and structure of the Doherty Organization. But just as a knowledge of anatomy is insufficient to enable a physician to practice medicine, so a knowledge of the history and the structure of our Organization is insufficient for our purposes. A physician requires a knowledge of physiology, a knowledge of the functions of every part of the human system, and in the same way we need a knowledge of how each part of our Organization performs its duties. To furnish us this information, Mr. Frank L. Blackburn will describe to us today the organization of the New York Office. Ladies and gentlemen, Mr. Frank L. Blackburn.

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Brain of the Organization. Dr. Fuld has likened the Organization to the anatomy of the human body. I think that is a pretty good comparison. I would carry that comparison a little bit farther and say that the New York Office might be likened to the brain and the nerve centers of the body which send forth the impulses that control the activities, and when I use the word control I want to use it in a more or less figurative sense, because among the properties all over the United States we have men of ability who are thoroughly capable of filling their responsibilities and carrying out the activities of the Organization. The New York Office wants to place responsibility into the hands of these men and wants them to take the initiative, New York merely acting as a clearing house and in an advisory capacity.

The Executives. Getting down to the details of the organization we will, first, of course, come to the executives of the New York office, who have jurisdiction and control over all the matters pertaining to the operations of the entire Organization, not only New York, but the outside properties, as well.

Following the executives, we have the operating departments, divided into two general classes: Public utility, first, as one class and oil production, refining, transportation, marketing and natural gas, as a second class.

Public Utility Operations. Under the public utility operations the New York organization has general supervision of the organization, the operation, the engineering, the construction, and all other matters pertaining to the operation of the companies. They have a corps of competent engineers who make examinations of prospective propositions that come in, which the firm desires to have investigated, with a view perhaps to adding additional activities to the Organization. In an organization the size of this there are amounts of material and supplies that have to be purchased. Particularly in the purchase of the large equipment the New York Office works with the local companies through a representative and helps them determine and make the purchase of much of their equipment. This activity involves the expenditure of many millions of dollars a year.

Again, there are all sorts of problems involving engineering and

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technical consideration. This work is handled by a chief technologist who supervises the research and experimental work, and through assistants obtains patents for the protection of the devices which may from time to time be put into operation.

Another important activity which is conducted under the general head of this department is the matter of looking after the welfare and safety of the employees in the properties as well as in the New York Office. You perhaps may not all appreciate that it is a very easy matter in an operating plant to have the equipment so arranged that there are many sources of danger, wherein workmen may very easily become injured. It is the duty of the man in charge of this work in the New York Office to visit the properties and eliminate these causes of accidents in so far as it is possible to do so.

Another important consideration of this department, in which it cooperates with the various companies, is the matter of rates and valuations. Hearings are frequently held in some parts of the country with the commissions, and it is necessary that our side of the case should be properly presented. For this purpose the department maintains a staff of experts who prepare the data to be submitted at hearings of this character.

Oil Operations. The other general division of operations, as I have mentioned, are the oil production, refining, marketing, natural gas and pipe line activities. These, in recent years, have grown to very large proportions. So much so, that only recently the New York Office underwent a re-organization to outline more definitely the work of the members of the New York Office who have charge of these affairs. There is now under this general heading, an oil producing department with a man at its head who keeps in touch with the producing problems of the field, and studies the reports of possible new acreage where we are looking to future development and all other matters pertaining to operations.

The natural gas and gasoline departments are also of such magnitude that they require special staffs to follow them and give advice and cooperation to the men in the properties. The gasoline department as here referred to is the department which has largely to do

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with the extraction of gasoline from the natural gases. Gasoline is obtained also, as most of you know, from the refining operations.

Our fields are scattered over a wide range of territory and it is quite a problem to get the oil that is produced transported to the various refineries that we control, or transported to the markets. This work is accomplished by means of tank cars or pipe lines which connect the fields with the refineries or central points of distribution.

The refining department has jurisdiction over the refining operations in the various refineries. These plants are located mostly in the Southwest, in what is known as the mid-continent section.

The marketing of oil and refined products is also one of the very important activities at the present period. We have a refining capacity now capable of handling more than 32,000 barrels of crude oil a day, and this crude oil is worked up into various products ready for market distribution. It means that there must be a large organization scattered over the country for the proper distribution of these products. The men in the New York Office concern themselves with the handling of these stations, located in various parts of the country.

We are not alone confining our activities to the United States, but are looking to and are in foreign markets, and are also looking to foreign fields for additional supplies of oils. This has resulted in the establishment of two other departments, namely the marine and the foreign departments.

The marine department's duties are to look after the proper shipping facilities for the transportation of the products which are for sale and for the possible gathering of any foreign production which may be developed.

The foreign department is what its name implies. It has charge of all the prospective work that is now under way or may be in the future undertaken in foreign countries, chiefly at present in Mexico.

This covers in a brief way the general operating organizations in the New York Office. I will next take up the various other departments.

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Bond Department. One of the most important activities now, due to the great extension that the Company has made and of which Mr. Frueauff spoke last week, is the raising of new capital for all these various enterprises. In this line the bond department in the New York office plays a very important part. They not only have largely the initiative in the creation and distribution of new securities but after such securities are distributed they have the task of maintaining the markets, not only the day to day transactions but the keeping and maintaining of relations with the various brokerage houses throughout the country with whom the Organization has connections. These houses are now quite numerous. I believe the last underwriting on the Empire notes involved the participation of more than two hundred and seventy different brokerage houses throughout the country. It is a big job to keep these people informed. They necessarily have to have information, and the supplying of this is one of the activities of the bond department, as well as some other departments of which I will speak later.

This department also conducts what we call a consumers, or customers ownership plan. That plan is intended to accomplish and is accomplishing the distribution of our securities to the customers, people using our service in the various communities in which we operate. This is a very important operation from the viewpoint of the Organization, inasmuch as it makes a consumer on our line in a way a partner in the business, and those partners are therefore more keenly interested in the welfare of the companies than they would otherwise be.

Another new endeavor which has recently been started is the education and development of salesmen. One of the great handicaps that the bond department has had, has been the inability to get capable men in the selling of the securities. By means of this salesmanship school they hope to find new talent to use in the sixteen new branch offices scattered through the various sections of the country and aid in the distribution of our securities.

Banking Department. The banking department is not a bank, in the sense that we ordinarily think of a bank; that is, it does not do a deposit business. It keeps the records of the firm of Henry L.

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Doherty & Co., of Cities Service Company, and numerous other allied financial companies that have been created from time to time, as the Organization had developed. They carry fiscal accounts of all the companies. As the companies have coupons to pay, great numbers of these are paid here, and they have other obligations to meet, and the New York Office acts as a sort of clearing house in these matters in a great many instances.

They have the duty of paying all the coupons and all the dividends on the Cities Service Company and all the other securities which are on a dividend basis.

The banking department ties in very closely with the bond department, which as I stated, handles the securities. The volume of this work is very large and the bank handles the clearances of these transactions as well as clearing the syndicate operations when new securities are put out.

The New York Office, by virtue of all these activities necessarily has to have currently very substantial funds of working capital. This capital is raised in numerous ways, but among the various ways are temporary loans among the New York banking interests. This is another function of the bank, to keep and maintain these notes and to give them whatever attention is necessary.

The war has made necessary the levying of large taxes by the government, and since reports are required, complicated in form, requiring large masses of information, it has become necessary to delegate some one to make special studies of all the various forms and rulings of the Government, in order to be in a position to interpret these matters and direct the filing of the numerous reports of all the companies. This is also another activity of the banking department. Another activity of this department in which we are all very much interested, is the keeping of the payroll.

Auditing Department. The auditing department has under its direction all matters of accounting and accounting records of the utilities, natural gas and refining companies, in fact, all the [redacted] which the Organization controls. They cooperate with the

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secretaries of these organizations in outlining their policies, and in selecting their men, giving special attention to the development of new material for many of the positions which are all the time open and which they have great difficulty in filling.

The task of the auditing department is the proper accounting and assembling of records for the reporting of the numerous classes of operations of the Organization. In counting up the other day I was astounded with the fact that there are really more than twenty distinct activities on which the auditing department has to provide systems. This means a great amount of work. The auditing department also has travelling auditors who go about the properties periodically and make the audits of the accounts of the companies. The work of these men and the work of the auditing department, I think we can say, has been very successful, because in all the examinations made by outside auditors of the accounts in the New York Office or in the accounts of the outside companies, in no instance has there ever been an exception made to the reported figures. There never has been a figure changed in the accounts as they have been rendered, or as they have given them to the public.

Another duty which the auditing department has in connection with the engineering department of which I spoke a while ago, is the matter of examinations of new properties. Such examinations cover two different phases: Examination of physical property and examination of the records of the company, to see that the statements submitted correctly reflect the situation.

The Treasury Department. The treasurer controls the cash funds of the Organization as a whole and coordinates the workings of parts of other departments which contribute the data on which conclusions are reached. The devising of proper systems for the correct accumulation of such information is one of his functions. Cooperation with the bond department in raising funds, cooperation with the bond department in the floating of new security issues and cooperation in the handling and maintaining of the markets after the securities have been issued, is another duty of the treasury department.

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New Business Department. The new business department directs and cooperates in the management of the various commercial departments especially in the utility companies, where these organizations have been in existence for periods of years. These departments have to do with the getting of new business of all kinds, electrical business, gas business, natural or artificial, the selling of appliances of all kinds and acting as intermediaries between customers and the companies in settling disputes and complaints.

A branch of the new business activity and one that is growing of great importance is the industrial heating business. The companies are now endeavoring to get on their lines large users of industrial heat, both electric and gas, and it is the duty of these men to go into these plants and see if by some means or other these operations cannot be carried out by the use of the products we have for sale.

Another activity of this department is the work of the industrial commissioner. We are always concerned in the growth of the communities in which we operate, and one of the best means of seeing that these various communities do grow is to cooperate with the civic bodies in these communities toward getting in new industries. Of course, we ultimately hope to profit in selling additional service to the increased population which is occasioned thereby or by selling the industry itself, its power or heating requirements.

The Statistical Department. This department receives the monthly reports from all of the properties. It checks the reports and carries out the correspondence necessary in making them correct. From these reports it compiles various analyses that are necessary, compiles its monthly operating statistics for distribution among the properties, compiles financial statements which the bond department or which some bank or some investor may require, and compiles the financial and other data that enter into the annual report of the Cities Service Company, and also copoerates in the matter of preparation of the data for the various other departments in the New York Office. The engineering department naturally wants data, the bond department wants data, the treasury department wants data, and the supplying of these needs is one of the chief functions of the statistical depart-

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ment. Investors want to know something about the communities in which we operate. It is necessary to follow this matter and keep up the assembling of information on the business activities in general in the communities in which we operate.

The Corporation Department. This department keeps all minute books of the companies that are controlled by us. It looks after seeing that stockholders' meetings are properly advertised, and directors' meetings properly called, and it prepares the documents for drawing bonds and various other corporate activities of this character.

Budget Department. In an organization such as ours, where the activities are so numerous and scattered over such a wide range of territory, it is impossible to keep in personal contact with these activities and gather, by any direct means, information concerning the results of operations or what may be expected in the future. A comprehensive system of forms which provide the means to the various companies for expressing these conditions and forecasts in a uniform manner has, of necessity, been developed. The handling of these forms in the New York Office and the accumulations and deductions made therefrom, may be grouped into three general headings and these as a group are generally referred to as the "Budget System." This consists of cash estimate and analysis, construction estimate and stock requisition, and an operating estimate and analysis. The cash estimate and analysis summarizes the cash production of the companies resulting from their operations for a month or a period, or to be realized in the future, and takes into account the net results of the other two activities referred to. The statements of all the companies are accumulated and the combined results or forecasts can be ascertained.

The construction estimate and requisition work consists of receiving all requisitions for expenditures to be made or stock to be made or stock to be purchased and classifies and accumulates the results of this work for the utilization of the engineering department and the Budget system.

The operating analysis work has to do with the handling of the operating forms and estimates in accounting for the net earnings

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realized or to be expected for the future estimated periods. These figures are also classified and accumulated for the utilization of the engineering department and the budget system.

The Transfer Department. All of these transactions in securities and the selling of new securities, necessitate a large amount of work in drawing up certificates, transferring certificates, maintaining records of various sorts, issuance of dividend checks, and the mailing of the same. The time is getting too short to enumerate all of these activities, but they are very large.

The Filing Department. In an organization such as this, there is necessarily a very large volume of letters and other data which must be taken care of. For that purpose we have a filing department, which has under its control the filing of all documents and letters coming into the various departments or emanating from them. It is a very large task to cross index and catalogue all these documents so that they can be found readily when requested.

The Publicity Department. This department works in conjunction with the bond department in all of their publicity work, and in addition has the issuance of the Doherty Daily News, and the Doherty Monthly News, and cooperates in the outlining of policies in the matter of all advertising work.

Stenographic Department. Necessarily, with all the correspondence in the New York Office there is a large amount of stenographic work, and this work requires a large force. The stenographic department handles all the outgoing mail. It does a large proportion of the routine typing work of the office, and supplies stenographers where no special stenographers are assigned.

Woman's Department. There has recently been created a woman's department, which has at its head, Mrs. Smith, whose duties are to interview various women applicants for positions and cooperate with the various departments in the selection of this type of help. We also have a representative of the training school. I cannot take the time

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now to explain in detail what this training school is, except to say that for years the Organization has maintained schools in the properties for the training of technical men. These men are trained in the actual operations of the properties, and it is now quite a large task in following through all the men of this class. I believe that at present the men in training number more than 250.

Personnel Department. Another important activity is the personnel work which has to do with the collecting of information of all kinds both as to ability and character of the employees throughout the Organization, so that when requests come in for men to fill vacancies, this system offers a ready means of determining the man best fitted for this particular work.

Conclusion. The enumerating of all these details has taken more time than I thought. I tried to condense it as much as possible, but there is at least one more thing of which I wish to speak. You no doubt realize from what I have said that many of the activities of the departments are very much interrelated, and so they are, and it has proved, I think, to be a very successful means of operation. This situation has resulted in many of the operations being conducted through what we term the committee plan of operation. Representatives of the various departments mentioned, meet and discuss the various problems and give their own view points as they relate to their own work, and I believe better conclusions result.

We may think that the Organization now represents a pretty complete arrangement for the handling of all the problems which arise, but we have thought that same thing a great many times in the past and only found that new expansions were necessary. So I am sure that in the future there will still be further developments, which will require further talent. New responsibilities will have to be delegated to new people who have the ability to assume them, and I think that therein lies the most promising field to the new members of the Organization.

There is still plenty of room and there is no one that wants to make room for the new men more than the older members. New talent discovered in any quarter is always greeted with satisfaction by all the departments and they welcome the rise that any individual is

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able to make. It is this sort of spirit that has always made the Doherty Organization successful, and is going to make it more successful in the future. I think it is this spirit that created the good fellowship that you saw manifested in the outing that we had Saturday. There is no obstacle encountered but what this organization feels that it can be overcome. It is the spirit that never says "Die." It is the spirit that the new members of the Organization, I think, should get if they want to succeed. I know of no better expression by which to characterize this spirit than that by which it is commonly called and which you all know as, "The Doherty Spirit."

CHAPTER FIVE

MEXICO AND THE MEXICANS

By HON. FRANCIS P. BENT

Former Vice Chairman, Board of Aldermen, New York City

Introduction. I may say that in public life, and in business life, I have found, as has been stated, that we know less about our neighbor just across the Rio Grande than we do about most of the countries of Europe. Realizing that condition, I decided to take a vacation some years ago and visit that country. Mayor Gaynor at that time gave me letters of introduction to Mexican officials.

We left New York on the Ward Line boat. It was my good fortune to find that the captain of the ship was an old school-mate of mine. He had attended the same school that I had in Connecticut, and before we reached Mexico, we had many pleasant chats about that country standing on the bridge of the ship.

Havana Harbor. Our first stop after leaving New York was Havana. Here we found the old and famous Moro Castle, that has guarded the

In introducing the lecturer, Dr. Fuld said: We know that the Mexicans are different from the Americans, but we do not know much about the Mexicans. Knowing that they are different and not knowing much about them, we are not likely to have a very good opinion of them. This is unfortunate, because we of the Doherty Organization have large interests in Mexico. In the Panuco District we produce about 55,000 barrels of oil a day. This is piped to the Panuco River and is barged down to the mouth of the river at Tampico. From Tampico it is brought in our own tankers to the United States, where it is sold in New Orleans, in Tampa and in Plaquemine, Louisiana, to sugar refineries, to phosphate mines and to other industries for fuel purposes.

Our principal subsidiaries in the Panuco District are the National Petroleum Corporation, the Southern Fuel & Refining Company, the Gulf Coast & Oil Company, the Tampicus Oil Company, and the newly organized Empire Gas & Fuel Company of Mexico. Because we feel that we ought to have a larger knowledge of Mexico and the Mexicans, than most of us possess, we have asked a man, who has a great deal larger knowledge of Mexico than most of us, to address us this afternoon on this subject. Ladies and Gentlemen, the Honorable Francis P. Bent.

entrance to Havana Harbor for many years. The first intimation that one has on reaching Havana is that he is in a distant foreign country. In many respects it resembles old Spain, because the buildings are of Spanish architecture. The most of them are painted pale yellow and many of them are white. There is a beautiful boulevard running through the central part of Havana, and at the end of that we find a large band stand, and thousands of seats, because the Cubans are very fond of music, as are also the Mexicans. Every town of any size has its band, of which it is proud, and two or three public concerts are given every week throughout the year.

Progreso. It is a two-days' sail from Havana to Progreso, which is the chief seaport of the State of Yucatan. On arriving at Progreso we were obliged to anchor about six miles from shore, because the water is very shallow, and then, in order to take off such freight as is destined for that port, a lighter tows out the scows and they in turn are tied up to our ship. From our ship they proceeded to unload some live stock that had been taken there, being imported from the United States. That shows to some extent the progressiveness of the residents of Yucatan.

Landing at Progreso, in the State of Yucatan, we first observed the tall lighthouse, which serves to guide the mariners while far off shore.

I inquired of a native as to the best means of seeing this place. He threw out his chest and said "Well, Signor, we have street cars." And sure enough they had, but one mule and a dilapidated car, was all their equipment, and the round trip on the line took about twenty minutes.

Sisal Plantations. We traveled from Progreso inland to Merida, which is the capital of the State of Yucatan, and enroute we passed a great many sisal plantations. The natives cut the leaves of this plant and take them to the warehouse where they have machinery that peels the leaf, presses out the juice and leaves a large mass of fibre. It is then put in the sun to dry. Finally it is pressed into large bales, then stored in large warehouses and afterwards shipped to all parts

of the world. They have shipped as much as \$40,000,000 of sisal in one year. It is a great industry in that section of Mexico. The sisal is really an inferior quality of hemp and it is used in making cheap rope. The harvesting companies in the west use very large quantities of it when they are harvesting wheat, and it is also used for rugs and matting. They have a little railroad track running from the store-houses to the dock at Progreso. It is then placed on scows that are in turn towed out to the large liners, that transport it to all parts of the world.

The Mestiza maidens are a mixture of Indian and Spanish. We find many of this type on the Yucatan Peninsula. The natives in many parts of Mexico are rather loath to use improved machinery or modern implements. These women, for instance, prefer to grind their corn or crush it, between two stones, a very old-fashioned method.

Arriving at Merida, which is the capital of the State of Yucatan, we find here the State House, where the Assembly meets and passes laws for the State. We also find at Merida the old cathedral, one of the oldest in Mexico.

Yucatan Pyramids. It would be a lecture in itself to tell you much about the pyramids of Yucatan. There is evidence from these pyramids that the very early people there had a wonderful knowledge of architecture, of art, and of the sciences. Much work is now being done in examining these old pyramids. One has a little temple on the top where the priests evidently went to pray. Some of the archeologists tell us that they believe these pyramids antedate the pyramids of Egypt. In time we shall find Americans going there in juts as large numbers as today or in the past they have been going to far away Egypt.

Vera Cruz. We returned from Merida to Progreso. There we went aboard the Ward Liner again, and it is another two days' sail from Progreso to Vera Cruz, which is the chief seaport of Mexico, really the New York of that country, because of its large port. It was at this same place that Cortez landed in 1518. You will note the

route taken. First we were at Progreso, and then the two days' sail across the Gulf of Mexico to Vera Cruz, and then follow the line and you see that we go on to Mexico City. As we neared the Harbor of Vera Cruz, we saw in the distance Mount Orizaba, which next to Mount McKinley, is the highest peak on the North American Continent.

During the latter part of the Diaz Administration, large sums of money were spent in improving this port, so that today we find there a modern up-to-date port. I had been advised not to stay long in Vera Cruz, as it was a most unhealthy place, but I found conditions had changed there, and that they had taken pains to keep things clean. Each day at noon, the prisoners were allowed out for a period of two hours, and were employed in scrubbing the streets. I found that they had men working industriously there, as we had on our streets, and that they had an ash cart that perhaps we might pattern after, because it has iron covers, and when the ashes are dumped into it, the cover is dropped down. This prevents the ashes from being blown into the faces of pedestrians.

The railroad running from Vera Cruz to Mexico City crosses many deep ravines and passes through innumerable tunnels. We were at a great height at this point and at times we were even above the clouds.

Mexican Embroidery. The old Spanish Gateway at Cordoba was built during the time of Cortez. The Mexican women are most adept at making drawn work and various embroideries and lace. The embroidered garments that these ladies have would bring a good price on Fifth Avenue today. While they are wearing those garments, they are going barefooted.

Still climbing you will notice in the background Mount Orizaba, the peak of which we saw in the distance when we were entering the harbor. Wherever a train stops in Mexico it is immediately surrounded by many natives. Some are selling souvenirs, others food, and there are always one or more beggars in the party. "One cent, Signor, for God's sake" appears to be all the English that these beggars know, but that is sufficient, and they always receive many pennies from the passengers.

Pulque. Beyond this point, between Esperanza and Mexico City, we find many pulque haciendas or plantations. Here this Mexican plant is cultivated. From this they make the Mexican drink. The method of making this drink is to take the sap from the stalk that grows in the center of the plant. When it has grown three or four feet above the ground, they cut it off and attach a gourd to it, and capture the sap for five or six weeks. Each day they will get from five to six quarts of this milky substance, which they immediately ferment. It is then sent to the shops where it is sold at one cent a glass. It has been well-styled the curse of Mexico and I believe that wherever possible they are trying to prevent further sale of it in that country. It produces a form of intoxication comparable to insanity and it has done much to make the Mexican peon the very poorest kind of laborer to be found in the world, not even excepting the Chinese coolie.

A different type of Mexican is the fellow with some means. He has a large number of men working for him. He has a saddle that is richly decorated with silver, and on his skin-tight trousers you will notice a double row of silver buttons.

This is one of the native cargadores, and he is carrying "a small package" on his back. These fellows, though not strong in appearance, can easily carry four or five hundred pounds on their backs, and can cover more miles in a day than a mule.

Love-Making. It may be interesting to note the manner of making love in that country. The native, who has a young lady that he likes, will go to her home and play guitar or some other instrument. If he cannot play, he will sing or whistle under a window or perhaps on the opposite side of the street. As he receives encouragement, he comes nearer, until perhaps after a month, they exchange notes. After two months, with the parents' consent, he will be admitted to the house, but he is always entertained in the parlor, the father and mother, and all the children being present. Should he desire to invite the girl to go to the theatre or to a movie picture show—because they have them there now—then he must not alone ask the girl, but he must be sure to invite the mother and father, grandmother and grandfather, and all the children.

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Mexico City. In the central part of Mexico City we found a great many beautiful plants and trees. They have many beautiful buildings and a great many of them were erected during the latter part of the Diaz Administration. The National Theatre cost about \$8,000,000, and is undoubtedly the finest building on the North American continent devoted exclusively to such a purpose.

Most of the churches and the beautiful large cathedral belong to the Catholic Church, some of them having been established at the time that Cortez captured that country in 1521.

The National Library contains a great many valuable books and many of them were brought over at the time of Cortez. The Commercial School and another large school, were all built during the latter part of the Diaz Administration, and were built, most of them by New York contractors. Milliken Brothers, who had large steel works on Staten Island, had several of these contracts.

Mexico City is on a high plateau over 7,500 feet above sea level. While it is warm there in the middle part of the day, blankets are required every night in the year in Mexico City.

Iron Man of Mexico. Gen. Porfirio Diaz ruled Mexico for nearly 31 years and was called the iron man of that country. He understood ruling the Mexicans better than any one who preceded him or who has followed him. During the latter part of his administration he was not popular, but that was due principally to the fact that he put too much trust in the men who were about him. Many of those who surrounded him in the Cabinet were dishonest. They were guilty of graft that would make some of the grafters of this country look like pikers, and the result was that, when finally Madero started his revolution, the army didn't come to the support of Diaz, as he had expected it to do, and as they always had done before, with the result that in 1911, Madero overthrew the Government, and Diaz was forced to leave the country.

Madero unquestionably was honest and sincere. He belonged to one of the rich families there, and he intended to bring about many reforms, but through treachery he was finally assassinated, and then we know what followed,—the Huerta regime, and later the present Carranza government.

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The rurales are the mounted police of Mexico City. They were organized by Diaz, and did much to clean up the city and the surrounding country, making it at that time as safe as it would be to go about New York City and its suburbs.

National Museum. One of the interesting places to visit is the National Museum. Here we found a great many relics of the past, and a visit there would give you a great deal of interesting history as to Mexico. Cortez came there in 1518, with a small force of men, and in three years time conquered the Mexicans. They outnumbered him one hundred to one, and he might not have been successful had he been less determined, or if the Mexicans had not been so anxious to capture him alive so that they might offer him as a human sacrifice to their War God. At one time some of his followers were about to revolt and mutiny, and hearing of it, he sunk his ships in the Harbor of Vera Cruz, so that it was impossible for his men to go back to Spain. We found in this museum many specimens of picture writings. This was the method employed by the Mexicans to keep a record of their early history and Cortez destroyed many of these writings while conquering the Mexicans. I think he did it unintentionally. The Mexicans at that time worshiped various idols and when he was conquering them, the natives would cling to these picture writings. Cortez thinking that was some part of their worship ordered them destroyed at the same time with the idols. In the main room of the Museum we find all kinds of idols—the Calendar Stone, also the notorious Sacrificial Stone. Prescott in his "History of Mexico" tells us that on some occasions three or four thousand prisoners would be led to this stone and sacrificed. The priest would lay the victim across this stone and a sharp instrument was drawn across the prisoner's breast. The heart would be torn out and thrown at the feet of the Aztec God of War. They thought that this would please the God and help them to win battles in the future. Those who have studied the Calendar Stone claim that the early Mexicans must have had a complete knowledge of astronomy, because, if time were figured today from that stone there would not be more than a few minutes variation in a hundred years.

Emperor Maximilian. Emperor Maximilian was the Arch-duke of Austria, and Napoleon the Third in an effort to curry favor with the

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Austrians in 1863 sent an expedition over to Mexico and took possession of that country, giving as an excuse that they had failed to pay some of their National bonds that were held by the French investors. This country had watched the proceedings, and finally sent word to Napoleon the Third that we would insist upon the application of the Monroe Doctrine.

At that time we had a pretty large force of men for it was toward the close of the civil war. Napoleon the Third thought it better to heed our warning and withdrew his men. Maximilian was dilatory in getting out. He had two or three opportunities of getting away but neglected to take advantage of them and later he was captured by the Mexicans, imprisoned for nearly two years and afterwards executed.

The Mexican White House. The Castle of Capultepec is the White House of Mexico, surrounded by a large park, and has adjoining it in the rear the Military Academy that they call "the West Point of Mexico." Much money has been expended for improvements and in decorating the interior and the exterior of this castle. Artists have been brought from foreign countries for this purpose. Most of the houses in Mexico of the better class have interior courts, so that there is plenty of light and ventilation.

There are many fine monuments in Mexico City and in many other cities throughout that country, including monuments erected in honor of Christopher Columbus, Charles the Fourth, which is conceded by artists to be one of the finest in the world. The latter is so strong that it would possible for a man to stand on the uplifted hoof of the horse. At one time Cortez left Mexico City and returning there found that many of his precious things, such as metals and other things that had a great value, had been hidden. He thought Guantemoc who was the last of the Montezuman Kings should be tortured until he revealed the hiding place. After torturing him for some time, he failed to confess and then the fire was put out. He lived for some years afterwards. A monument has been erected in honor of Guantemoc in Mexico City.

The Monument of Independence. This monument cost nearly \$3,000,000 and took ten years to erect. The Mexicans fought Spain, following the example of the colonies here and in 1821 secured their independence, just 300 years following the conquest of Cortez.

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A monument has been erected in honor of Benito Juarez, whom they call the George Washington of Mexico, because he was the one that led the Mexicans, when they succeeded in winning their independence from Spain.

Markets. The Thieves' Market at one time was a place where stolen goods were disposed of, but now, while it is still called by that name, it takes the place of our five and ten cent stores. Tourists all visit the Thieves Market.

They have many beautiful flower markets and the Mexicans are very fond of flowers. You give a little child a few pennies, and he is far more apt to go and buy a flower with it than he is to buy candy.

The Mexican women are very adept at making the drawn work which the ladies are very fond of, and which brings a good price wherever it is sold, even in Mexico City.

The natives sell potatoes sometimes by weight, but in most cases where you find a market place, the vegetables are spread out on the ground and put in little piles and then sold at so much a pile.

Canals. In the days of Cortez, Mexico City was called the Venice of America, because there were so many small lakes and numerous canals, the Mexican plateau being surrounded by mountains. The result was the water would come into the lower parts and keep these canals filled. Since that time there has been a drainage canal built. At first they thought they could cut a slit through the mountain and get rid of the surplus water in that way. Apparently it didn't occur to them that a tunnel could be built. During the Diaz regime, after a great deal of time and labor had been spent, a tunnel was built, and now that entire plateau is drained.

The foundation of the Catholic Cathedral of Mexico City was laid on the original site of the Aztec War God. This Cathedral is unquestionably the most beautiful cathedral in North America today. The rails and chancels and many of the decorations are of solid gold and silver.

Church of Guadalupe. The Church of Guadalupe is just outside of Mexico City. Natives make a pilgrimage here from all parts of Mexico each year. Just back of the altar is the famous tilma "the Virgin of Guadalupe." It is believed that this picture was made as the result of a miracle and caused the building of a church at that point. Many years ago sailors on the Gulf of Mexico were in danger of losing their lives because of a hurricane. They prayed to the Virgin of Guadalupe to save them, and promised if saved, they would erect a lasting testimonial. These huge sails carved out of stone are the result.

Bull-Fighting. What baseball is to the people in this country, the bull-fight is to the Mexicans. The matador waits for the fight to commence. We see them enter the ring—the matadors and all their assistants. The matador is on horseback leading the procession. At each bull-fight six bulls are killed. They go through the same performance with each bull. Just as we have innings at a ball game—one inning the same as the other—the same rules govern. One or more horses are killed each time a bull is killed. The idea is to try to put one of those short swords in the shoulder of the bull and then step quickly aside. The matador advances—in his left hand a sword and in his right a red flag which he waves to infuriate the bull, and as a result when the bull lowers his head to charge, the matador drives his sword just back of the shoulder of the bull which punctures his lungs and kills him. Every city of importance in Mexico has a bull ring.

Isthmus of Tehuantepec. We next traveled south toward the Isthmus of Tehuantepec, and passed a large tree. It was a large tree at the time of Cortez. It was referred to by him in some of his writings and can be seen at this time—one of the largest trees we have any record of on this continent. Across the Isthmus is a railroad that runs through a tropical country, and we found here all kinds of tropical trees and fruit such as the cocoanut tree and the melon tree where melons grow on trees. If they hand you a lemon from the tree of Royal lemons, they hand you a big one. Bananas grow on the Isthmus of Tehuantepec. Some time ago an American colony located there, and they wanted to build a school house. The only wood available was mahogany, and they built it of that.

The natives on the Isthmus use a very old style of plow. Just two pieces of wood that might have been handed down from the days of Moses. The Tehuantepec woman is the best physical type of Mexican woman to be found. As a rule these women are about twice as large as the men, and there are about three women to one man so they rule there, without any question of voting.

Mining Section. In concluding our trip we proceeded north from Mexico City through the mining section of that country. You will bear in mind that Mexico is unquestionably the richest country in minerals that can be found in the world. During the last four centuries Mexico has produced about half of the world's supply of silver. When it is possible for these mines to be opened and developed, Mexico will progress more rapidly than it has in the past. One of the largest quartz mines is operated by the Guggenheims, and the largest oil well was first opened up in the Tampico District. This well had a flow of nearly 100,000 barrels a day before they were able to cap it. Today it is well known that the largest amount of oil to be found in any one section is being taken from the Tampico section of Mexico. If it had not been for the oil that the allied forces received from Mexico perhaps the war would not have been ended as early as it was. I might state in passing that arrangements are now being made whereby oil from Mexico may be used in this city for heating purposes in place of coke and coal, and it is hoped that this will tend, in one direction at least, to reduce the high cost of living.

The little mining village of Guanajuato is surrounded by a great many hills and very rich mines. The air at this place is such that after bodies are placed in vaults for a certain length of time they mummify. It very often happens that the husband possibly will pass away and the wife will hire one of these vaults, because that is the usual procedure, to hire a vault. After a few years she stops paying the rent; perhaps she has married again. Then those bodies are taken out of the vaults and thrown into a pile, and those that are mummified are stood up along the wall. This happens to the poor fellows because the rent was not paid.

Travelling through Mexico and especially the northern part, we come upon many varieties of cactus, so much so that Mexico has been

called "Cactus Land." In places they grow as large as trees.

Monterey in the northern part, was pointed out to me at that time as one of the most Americanized cities in Mexico, and I asked why they considered it such. They replied "Why, it has a fine brewery." It looks as if some of us would have to go to Monterey in the near future.

There is a bridge crossing the Rio Grande at Laredo, and we were pleased to get back on American soil. At San Antonio we visited the famous Alamo, and then, went by train to Galveston. Here we marveled at the wonderful sea wall that has been constructed in Galveston to prevent further "Galveston floods."

Mexican Flag. In closing I would call your attention to the Mexican flag. In the centre you will find the eagle standing on a cactus plant with a snake in its mouth. The early Mexicans emigrated from some part of what is now New Mexico or Texas or perhaps Arizona. They were looking for a suitable place to start a new settlement. When they arrived at this beautiful spot where Mexico City is located—because there is no better climate in the world than this plateau—when they arrived there, they saw an eagle standing on a cactus plant, just as you see it there on their flag. They thought that was a good omen and they adopted it as their National emblem, and it has been used ever since.

Let me say in closing, that while we do not want any trouble with Mexico—we do not want any of their territory—we do believe that those who have interests there should be properly protected. We do believe that all of those who go there, whether they go from this country or from any other part of the world, should receive the same protection for life, liberty and the pursuit of happiness, under the Mexican flag, as they find today under the American flag.

CHAPTER SIX

THE DOHERTY SPIRIT

By MILAN R. BUMP,
Chief Engineer, Henry L. Doherty & Co.

Introduction. In the first place I am trying to exhibit the Doherty Spirit by appearing this afternoon to fill in for another Doherty man who had suddenly become incapacitated and could not appear today. Being as usual one of those good natured Doherty fools, you will excuse me if I am not as prepared as I would otherwise have been, and had I at least three hours notice, I might have done a little better.

The subject I felt was one that did not require preparation. I thought you all knew the subject so well that simply to name it was to tell the whole story I would give—that every one knows the story

In introducing the lecturer, Dr. Fuld said: The Doherty Organization owns a trolley line in New York City. It runs from the Manhattan end of the Queensborough Bridge to Jamaica and return; and like most trolley lines of this city it is bankrupt. It is in the hands of a receiver.

But if you should happen to board one of the cars of this company you will realize at once that it is different from any other trolley line in this city. In the first place the conductor will treat you with unusual courtesy. You will observe that he is unusually careful to avoid accidents. You will notice, too, that the motorman is very economical in the use of power, which is a good thing for the company. And if you should happen to talk to one of these men about their boss, as they call the superintendent, you will notice a very peculiar sparkle in his eyes—they evidently have some affection for their superintendent. As a matter of fact they are working for less pay at present than any other trolley employees in this city. That shows that they have some regard for their company and their superintendent.

If, on the other hand, you talk to the superintendent about his men you will almost be convinced that he is not employing men, but an aggregation of demigods; and if you speak to him about the two conductorettes on the line you will be very glad that he met his wife before there were any conductorettes on his line.

That trolley line, gentlemen, typifies the Doherty Spirit. It is very hard to define what the Doherty Spirit is, but we all appreciate that there is such a spirit. Mr. Milan Bump, our chief engineer, will address us this afternoon on "The Doherty Spirit." Mr. Bump.

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and knows the meaning of the Doherty Spirit as well as I might be able to tell it to you.

A Small Beginning. I might go back for a moment to the beginning, to the first little crowd that we had in this office, when there were four or five of us all told and when the auditor called on the engineer to help make reports at the end of the month, and the engineer called on the auditor to go out and help to list the lines that he examined.

We were all one department and one little family and what was one fellow's problem was everybody's problem. I can remember very well George Williams in the early days going around checking pole lines for me. I can remember Paul Jones doing the same thing, and I can remember helping Paul take the figures off the books. And Scotty would always insist we had to work as a team, and we got along and got over more territory that way than if each one of us felt we had a department in charge.

An Important Trip. I remember on one trip that Scotty and I took about the fall of 1906 we examined eleven properties, made complete written reports in to New York and were back here in New York to discuss the reports in thirty-three days.

You can imagine we did not have much time to sleep on the trip. But it was not that each one of us was acting as an individual, that made those things possible. It was the team work, the true family spirit, and it was from that teamwork and from that true family spirit which Mr. Doherty had instilled in us all that the Doherty Organization has become what it is today.

The Days of 1907. I can remember very well in those dark days of 1917 things looked pretty shaky. We were a new Organization just getting our start here. We were not known here, the banks never heard of us, and as the elevator starter said to the office boys we had then, in reference to the uniforms, that the "H. L. D." on the collars

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stood for "Henry Lacks Dough." And we had then very different conditions to meet than we have today.

Expansion. But some of us were dreaming even in those days as Mr. Doherty was dreaming, and when we talked about expanding to take a whole floor we thought we had reached almost the heavens. I remember when the expansion took place and we took on the whole fourteenth floor we thought we certainly had grown big or about as big as we were going to grow. Then we added other space, as you know, day after day, until today we could occupy the whole building if we could get it. This is the fulfilment not of a corporation but of a family spirit that means to keep on growing.

Perpetual Growth. One of the earliest remarks that Mr. Doherty made to me, and one which I will never forget, is this that when any company or any concern becomes satisfied with its size and with its present condition slow death is beginning in that company, and within the course of a few years it will have passed away. And whatever I may do, he said, I want to see up to my last day the corporation or the company with which I am connected dissatisfied with its present size and still wanting to grow, still wanting to be bigger, and stronger.

Delegation of Responsibility. When we came down through to 1910 and 1911 and survived the 1907 conditions and began to see the bigger possibilities, even then few of us could dream of how big and how strong this Organization could become. But there was a new problem introduced. Up to that time a comparatively few individuals could carry the responsibilities of the Organization; perhaps a dozen men could look after all of the important routine of the New York Office, could see that everything was done and everything taken care of.

Then came the problem of growth: How were we going to grow? What were we going to do to continue to grow larger? There was only one answer—there must be more men, there must be more

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men able to carry the load, they must be more ready to develop to the size of existing responsibilities, so that the leaders could go on to other things. And almost at once the problem seemed to solve itself. There was only one way to grow in the minds of the Doherty Organization, and that was to grow from within. We could go outside and hire men; we could go outside and hire men who perhaps knew the work better than the ones in the Organization.

Promotion of Employees. But that was not the spirit of the Doherty Organization; the spirit of the Doherty Organization was to take the fellow that was within the Organization and boost him and make him make good in the new responsibility. And as we went along we found it was an absolutely self-exciting process, going along from day to day and month to month. There is never a time when we cannot look back and say "Yes, we have a man for you, we have a man to fill the job you name, we have a man to assume the responsibilities and take care of them."

That is the true spirit and the meaning of the spirit of the Doherty Organization. As to the relations between the individuals in the Organization, some have said that this growing as a family, this growing with the Organization constantly in mind, means a loss of individual initiative; it means that a man buries his own ambitions in the ambitions of the Organization.

Personal vs. Organization Ambition. I hold that it is just the opposite. I hold that that is absolutely untrue. The man who forgets his personal ambition in the ambitions of the Organization achieves more each and every year that he lives than the man who starts out with a personal object in view and is satisfied when he gets that one little object, and then finds that he is through progressing and that life holds nothing more for him.

Boosting. The man who wants to succeed at the expense of others has no place in this Organization; there is not any room for him at

all. We have no place for the man who will either hide a truth or tell an untruth about another man for the sake of his personal advancement, at the expense of the other man. It is true that we very very seldom have such cases, but I just want to say a word to the younger people in the Organization along that line, and that is this—that you never gain in the world by trying to hide facts or distort facts. The big gain comes from telling the truth, from giving the other fellow a boost. If you know another fellow that is worth while, if you know he can handle a position that is open, the thing for you to do is to come to the front, and say so—tell just what you think, tell it honestly, tell it fearlessly. It will not hurt you, it cannot hurt you, it will make you a bigger man in the eyes of those who ask you than to do any other thing. They may be all the while testing you for some other purpose that you do not know about, and if they find you have deliberately misled them, your chance for a future is hurt and your future is simply blank.

Unselfishness. We have come along now. This is my fifteenth year with the Organization, and I wish I had time to look around this room and cite to the younger people here particularly the examples of the ones in the Organization who have imbibed this Doherty Spirit. Unselfishness has done it. You have come to the front and made good through making good for the Organization.

Men Who Have Succeeded. I wish I could tell you about the boys who were meter readers and nothing more when I first went to Denver; yes, of the boy who was an office boy in Denver—I see him in this room—who is a responsible head of a department, and yet he is hardly past thirty-one. I wish I could tell you of the various ones who have absolutely made good through forgetting themselves, not through boosting themselves. The Organization is filled with them. I could go out into the properties and show you men who are general managers of the properties today who came to us as green cadet engineers or firemen or were in very menial positions just a few years back—all within the history of this Organization.

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One, for instance, was a street car conductor ten years ago and he is a manager today. The Organization is full of those cases, and it simply means this,—as long as we grow, as long as we are able to find men to fill the responsible positions, there is going to be an opportunity ahead for every man and every individual in the Organization.

Opportunities for Women. When I say “man” I do not mean to slight the women; I am simply talking from the impersonal standpoint. I think there is a great future for the women in our Organization, and I think it is growing bigger every day and every minute, and I think you are just now beginning to have that fact recognized by the Organization.

The Future. As we go along to the problems of tomorrow—why, we are poor dreamers, all of us, I think. What we are today and what we have created up to today represents you might say the first spurt, the first sprint in the race. What are we going to be in another fifteen years from now? We have had fifteen years of organization history. Now, based on this fifteen behind us, what will the next fifteen be?

I can tell you. It will be just as much bigger than today as that of today is bigger than the beginning—if the members of this Organization will continue the true Doherty Spirit, will continue the true Doherty feeling of building in from behind, of supporting the ones up front and of seeing that there is never a position open but what there is a man capable of filling the position and assuming the responsibility.

Opportunities for Advancement. I know some of you in the office departments have been a long ways removed, a long ways detached from the executive side of a real glimpse of the Organization as a whole. You feel that your work today is not of much importance, that you could drop out and perhaps would not be missed, and that

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sort of thing. Now, that is not true. If you have a real sincere desire to succeed you have a bigger chance ahead of you today than the man who entered this Organization fifteen years ago had. You have a bigger opportunity, because the big grade in the history of this Organization has been ascended and we are at a point now where we feel that within the Organization itself we have the power to make the Organization grow.

And we want you—we want every man and every woman who has an ambition to succeed, to grow bigger, to do something really worth while for the sake of doing something worth while, not mere personal aggrandizement; we want you to come in, come along with us, and feel that you are part of this one big family. It is going to be a big family; it is already a good big one—seventeen or eighteen thousand of us all told. But that is small to what we can be; that is only a starter. If we will do the best we know how today and tomorrow and every day, why the eighteen thousand in another fifteen years can just as easily be one hundred and eighty thousand. It does not seem nearly as impossible as it did fifteen years ago that we would have eighteen thousand today.

You can see what that means in the way of opportunities for everyone of you, and I want you to get that one message if I am not able to convey any other to you today, and that is that there is room at the top. There is constantly more room at the top, and as long as the company does not feel that it is being left behind through failure of its members to develop, this Organization will continue to grow, it will continue to be bigger, brighter, stronger. It will be a happier organization for everyone connected with it. It will be a more successful organization in the success and happiness of its members.

Courage. This Organization, I am sure you will realize, does not aim to have mere financial success. It does not aim to have its success measured only in dollars. There is a great deal of satisfaction that a lot of our boys are getting who are out on the firing line, fighting

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what has been a losing game in the last three or four years. As a great many of you know, the public utility properties have been up against very, very hard conditions. They have seen their earnings slip back month after month, almost for years it seems. And yet they have not lost their courage; they have enjoyed fighting the game because they had the realization in their hearts that they were doing their very best as stewards to discharge their stewardship capably and to make their property do the very best it was humanly possible to do.

Improvement. Now, there is one old maxim of Mr. Doherty that I think we can all copy into our own lives. He has always said "There is no idea, there is no standard, there is no method, no theory, that can be called the best theory as long as a possibility exists of a better one. We may have certain ideas today, certain ideals. We may think that certain things are absolutely the things to do. The Organization has them today; we all tie to them. But let us keep our minds open for the better things, and then let us be willing to recognize them. Let us never be in the position of saying "Oh, well, we are the best there is and what's the use of trying?" That is a sure sign of slow death and a sign we have reached a point that is dangerous. I say that there is no method, no policy, no plan, that is in effect today in this Organization that Mr. Doherty is not absolutely ready to change as soon as any member of the Organization can show him a way to change it that will improve it.

Now, that means a great deal. It does not mean that this Organization is run with a military commandership at the top; that the people in it have nothing to do but carry out orders. It means that Mr. Doherty is passing out to the Organization just as much as he possibly can the responsibility for the Organization, and if you can help him, if any one of you can bring forth a new idea, that will be a help to the Organization, that is the thing to do. Because it means that the Organization grows and with its growth every one of us is bound to succeed more than we have in the past.

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The Story of the Big Mogul. I used to tell a story several years ago to some of our men and perhaps some of you have not heard it. It is about the problem of the man who was discouraged. He thought he had reached a point in life where he just could not go any further. He thought he had reached the limit of his capabilities, and he would just have to stop growing and be contented with his lot in life right where he was. But one day he met a cheerful man and this cheerful man said, "Now, look here Bill, you don't understand this problem at all, you have not seen it right." He said, "You remind me of the problem a freight crew out on the mountain had one time, the problem of getting a big freight train up over the mountain.

They went out to find an engine; there was no engine to draw it. They started down through the yard looking for the engine, and they came up to a great Big Mogul, and they said to the Mogul, speaking to it, "Mogul, do you think you can drag that thing over the hill?" There was a great shower of sparks and steam and the Mogul said, "I don't think—I can, I don't think—I can." So they went down the yard hunting for another one and came to a big Atlantic engine, and they asked him the same question and got the same answer.

The Story Of Freshy. Finally they got down to the end of the yard and there was nothing left but a little snub-nosed yard engine, and they addressed him: "Freshy, do you think you can pull that thing over the hill?" Freshy replied: "I guess—I'll try, I guess—I'll try." So Freshy got out on the main line and was coupled to the freight train. She started off with all the steam that she had—"I—think—I—can, I—think—I—can, I—think—I—can, I think I can, I thought I could, I thought I could, I thought I could, I thought I could" and over the hill they went.

Personal Troubles. Now, it is that spirit that we want you all to put into your every-day lives. I know just as much as you do of the many little personal troubles we have, and I have a little tendency to be blue at times. I know everybody else here is human; we all

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have those tendencies. But let us keep the big game ahead of us; let us keep the big thought ahead of us that we have not reached the top of the hill. But we can, and as long as we keep that thought ahead of us today's troubles are really small.

The Spirit of Unrest. Looking over the country today I suppose there is a bigger spirit of unrest than we have ever known in our history. But try to analyze that spirit of unrest, try to find out what is really behind it. Simply the lack of a goal. You ask the laboring man today and he will admit if you get right down and talk to him that he never was so well off in his life. You ask the manufacturer, you ask the banker and you ask the farmer and practically all of them will say "Yes, that is true, but we are not getting our shares."

Selfishness. Now, what is that "getting our share?" It means a spirit of selfishness that is in the nation, a spirit of "I want to get better than you do." And it is that spirit fundamentally that we have got to work on. It is because of that spirit that the radicals and I. W. W.'s are springing up today. They want it all. They want to start by tearing down everything. Why? Not because they want it torn down; because they think they can get more of it than the other people in the scramble that would follow. It is the spirit of selfishness that is behind it all, that is causing our trouble and we have got to get out and combat that spirit. And I say the only true way to combat the spirit is through a spirit of cheerfulness, through spreading broadcast a spirit of cheerful service, being willing to put forth the same conscientious endeavors we ever did, and to get the rest of the country to do the same thing.

Love of Service. It would be almost impossible to measure the value of such a propaganda spread broadcast across this country today—a doctrine of cheerfulness, a doctrine of love of service. That is what the new Doherty Organization Fraternity stands for and the Doherty spirit is fraternity.

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I want to get that thought in your minds. I see a good many from the properties here today. I want that message carried out to the properties if I can get it there, and I think it would be a good thing for every one of you to carry it to your homes and carry it to your friends. Let us stop to smile. The world is still going on. Why think that it has all stopped? You go along today and see a lot of sad faced people and you would think the world was coming to an end the day after tomorrow and that they had not found a place to be buried in.

Now, you get right down to it and analyze almost any one of those persons and they cannot tell you anything wrong, except there is a spirit of unrest in the air. I think we have got less of that in this Organization—and I am thankful for it—than in almost any other organization in the country, and I think the secret of it lies in the Doherty Spirit, the spirit of cheerful service. I think if you will analyze it you will see that this factor has been the great think in holding us together no matter what the future conditions may be.

Now, as I said, I did not have any set speech prepared today because I did not have time, and usually when I try to prepare a speech it is not any good anyway I generally end by throwing it away and starting over. But I just want to carry these few words to you, or this little message to you, in my humble way, and see if I can in some measure instil into you that old family spirit that some of us who were in the Organization in the early days, were fed upon and have grown up since. I want to tell you there is not one from the lowest office boy in this Organization that has not a great future if he will deliver the goods, if he will do unselfishly and ungrudgingly what should be done. I can say to you we will be just as much bigger tomorrow than we are today as we are bigger today than yesterday; and that there will be an inevitable opportunity. But we cannot do that unless you all come along and get in with us, unless you all push, unless you all show the spirit of boosting unselfishly the organization all the time.

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A Slogan. Mr. Doherty as the head of the Society of Electrical Development adopted a slogan some time ago: "All together, all the time, for everything electrical." That was simply transferring the essence of the Doherty Spirit. As I see it, it means simply this: "All together, all the time, for the Doherty Organization."

CHAPTER SEVEN

FUNDAMENTALS OF ELECTRICITY

By T. COMMERFORD MARTIN

Advisory Secretary, National Electric Light Association

Introduction. It is very gratifying indeed to listen to such an obituary notice, but I must disclaim any desire this evening of appearing before you or posing before you in the light of the only man who knows what electricity is—because I don't. And I think you will know less about it when I get through than you do now.

The Fundamentals. I understand my subject is "The Fundamentals of Electricity". I am going to give you a little list, though it may not be according to the canons or exactly correct. This is the list of fundamentals of electricity that I have made up,—water, fuel, copper, iron, steel, wood, land, capital, labor, enterprise, and that which I have before me so manifestly at the moment—brains.

In introducing the lecturer Dr. Fuld said: When electricity was first introduced as a commercial commodity a man was indicted in the State of Massachusetts for the larceny of electricity, for making an unauthorized connection to a transmission line and taking current without paying for it. The court promptly quashed the indictment on the ground that electricity was not property susceptible of larceny.

Electricity, the court held, is intangible. It is invisible. It cannot even be smelled as gas is detected by the sense of smell. It is not subject to measurement by the ordinary standards of measurement. It has neither length, breadth nor thickness. It was found necessary to amend the statute in order to protect electricity from theft.

If the courts have experienced this difficulty in getting a proper concept of electricity, our own lack of knowledge of this subject is easily explained though it cannot be excused. We use electricity to such a large extent in business and in our homes every day that we all ought to know more about it than we do. To furnish us this information Mr. Martin, than whom there is nobody in this country, if indeed in the world, better qualified to talk on the subject, will tell us something about the fundamentals of electricity this evening. Ladies and gentlemen: Mr. T. Commerford Martin.

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Static And Dynamic. Electricity, as you know—it would be presumption on my part to think that this is the first time you have heard the statement—is both static and dynamic. There really is no underlying difference. At the present moment you are static; when I get through, as speedily as possible, and you get up and walk out—you will be dynamic. The same person, same thing absolutely.

That is one of the underlying fundamental mysteries about electricity, which is presumably beyond description, and so regarded, answering that long category of adjectives which my friend Doctor Fuld used so eloquently. But still it is within our comprehension as much as any phenomenon with which we are acquainted in this little world and in this brief life of ours.

Motion. Both static and dynamic electricity are produced by motion, and in order to get any electrical effect, manifestation or phenomenon of any kind we must have motion. Electricity can be produced in various ways. Only yesterday, or last night, I read the statement that Benjamin Franklin was distinguished because he made the discovery of electricity by rubbing a cat's fur backwards. I think his discovery probably would have been just as fertile and fruitful if he had rubbed the cat forward. My friend Mr. Edison once tried to charge a telegraph line by using a cat as a battery, but the cat objected in the middle of the experiment and Mr. Edison has made no later report on the subject.

We can get frictional electricity of the same kind by rubbing various materials together, notably glass plates, the large plates which you see in the doctor's office if he makes a particular use of electricity in his work. Frictional electricity is also seen in the lightning from the clouds, which is a beautiful phenomenon, but so far as electrical development and utilization is concerned is today vastly more of a

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nuisance than the great Creator intended it to be when he first put it in the skies.

We really have nothing very new in electricity today in relation to motive power or light, or its application to medicine or chemistry, but the trouble was that all the earlier discoveries in the utilization of electricity were based upon getting current from batteries. When I tell you that an ordinary assumption or estimation is that it costs twice as much, ten, twenty and possibly thirty times as much to get electricity from a battery in which zinc is consumed as from a waterpower plant or a dynamo plant run by a steam, gas or oil engine, you will realize that electrical development, science, progress and utilization could make no very great headway until we got away from the regime of the battery. It is true that batteries are still used for push-buttons, in teaching the young how to shoot, in raising up electricians for the future, and are also used somewhat in telephone work. But the battery has fallen very much to the rear as a means of furnishing current for electrical development and utilization.

We have the same phenomena, however, that we have in connection with electricity, which is derived from electro-dynamic sources, as we have with the battery.

The main thing is to secure your current and, as I have said, there can be no electricity unless there is motion, which is equally true in the battery as well as in the dynamo and in the motor, the battery being regarded simply as a mechanism or machine for pumping electricity out of the battery and onto the line for useful work.

Dynamo. Our whole modern use of electricity is dependent upon the electrical energy or current which we derive from dynamo electric machinery. You have before you for a moment, we will say, a human dynamo. The phenomena are so simple and so readily understood,

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I think, that you will follow me when I show you that I have in my left hand here an ordinary plain permanent horseshoe magnet and I have in my right hand a coil of wire. If I move that coil of wire up and down in front of that magnet or better, if I revolve it, or if I move the magnet in relation to the wire, even as I am doing that—and if I had the instruments I could show you—I am getting up a current of electricity in that coil, and that is all it amounts to, even when we set Niagara to work.

We can convert that permanent magnet as we call it, into an electro-magnet by winding a little wire around it and using soft iron instead of hard steel; we can multiply the number of coils; we can put the coils within the field of the magnet and revolve them, or we can revolve the magnets around the coil of wire, or we can set both in motion. As long as we change the relative positions, and as long as the wires are cutting the lines of force which are emanating from the poles of those magnets, we are getting an electric current, and all we have to do is to conduct it away from that bunch of wire or the bunches of wire, put it on the circuit, and there utilize it. That is all there is to it. I do not think that is such a wonderful thing to understand.

Just to illustrate, here, for example, is a model of a little Edison dynamo. Thus you have your electro-magnet and here you have your coil of wire and all you have to do is to hitch an engine, a steam engine or other engine, to this by means of a belt and set that coil in motion and in accordance with the speed at which you run it, the amount of wire there is and the size of the machine, you get your quantity, quality and potential of electrical current.

By means of a model bipolar, direct current, Edison dynamo, these principles can be easily illustrated. In all such machines the object is

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simply to spin the coils of wire constituting the armature in front of the field magnets, or vice versa, and this is done very easily by connecting the dynamo, often by means of a leather belt, to a driving steam engine or water wheel, so as to use the energy of expanding steam or the energy developed by falling water. In proportion to the amount of prime energy used, the size of the dynamo, the number of magnets in the field, the amount of wire in the windings of the armature, the speed of revolution, would be the quantity and quality of the current obtained—its voltage and amperage.*

Motive Power. Developing these few fundamental ideas, let us pass briefly over the ineffective method of producing electricity by friction and the expensive method of developing it by chemical action in primary batteries, to treat of the generation of current by modern methods, starting with the fields of force around magnets, and around wires through which current is flowing. The familiar analogies as to the flow of water in a pipe may be used to emphasize these principles.

So long as you have the motive power to spin the electro-magnets and coils of wire in front of each other, and to convert by such motion the energy into current—the nature of the prime mover matters little and is subject to almost infinite variation. In the Far East even man power has been used. The lecturer had seen many plants driven by wind power, efforts have been made to utilize the wave motion of the ocean, and when all the coal is gone, great possibilities might be found in the tides.

Water Power. Meantime great and growing use is made of water power, by means of two main types of hydraulic machinery—water turbines and bucket water wheels—the former being employed usually for large dynamos—the latter for small units. The difference is broadly that in turbines the shaft to the revolving field or armature

*The lecturer began at this point the presentation of about thirty slides accompanied by a concurrent discussion.

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is connected vertically and in the wheels it is connected horizontally. But the result is the same in getting as much as possible of the energy out of the falling and gyrating water into electrical current.

Some of the slides showed one of the great power houses at Niagara, —the long shafts connecting the turbines at the bottom, 150 feet below, with the dynamos at the top, being compared two spools at the opposite ends of a lead pencil. Today they are generating over half a million hydro-electric horse power at the Falls and some people complain of their "desecration". "I think it is the best thing that ever happened. They are just as beautiful as ever. You look at a beautiful woman and she is beautiful just to look at. But you thank God when she is married, and is then more beautiful and useful than ever. Now Niagara is just married."

At Niagara the dynamo generators shown were of the alternating current, two phase type, and dynamos may also be three phase, single phase or multiphase, or may be of the direct current type— there being as many varieties and types as there are of gasoline cars. The differences lie in the arrangement of the magnetic poles, the coils of wire, and the manner in which the current is "piped away" from the machines to the circuits of transmission and distribution.

Engines. Passing on to steam engines, these are of numerous types, like the boilers feeding them with steam; and the furnaces under the boilers instead of using coal can be stoked with almost anything burnable from sawdust and sugarcane trash to finely sprayed oil or natural gas.

A number of slides were exhibited of types of engines of the reciprocating type and in contrast with these steam machines of the reciprocating type, were shown steam turbines which are now the prevailing practice in the largest generating units up to say 50,000 H. R. Reference was also made to gas and oil engines for driving dynamos—the function and the result being ever the same, through the cycles

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of converting heat and energy into motion and that motion resulting in the spinning of coils of wire in front of magnets.

Switchboards. There are various types of switchboards to receive the current thus generated, and of the transformers to which such current, if alternating, is also often delivered to raise or lower its voltage, particularly in the case of long distance transmission at high pressure, say 150 miles or 150,000 volts, or to take ordinary alternating current of say 22,000 or 11,000 volts and bring it down to 220 or 115 volts for use in the home. The electric transformer is a machine that leads a double life, and to explain its construction let us examine this little model of the first one ever put into practical use in America. If you want to store electricity as gas is stored in a reservoir, this can be and is largely done by means of the chemical reaction effect in a storage battery.

Uses. The next fundamental condition of electrical supply after the generation and distribution of the current is dependent on what you want to do with it, and this leads into ramifications affecting every department of social life and of industry. Electricity is a protean agent with infinite transformations and reversions, so that in an extreme case coal could be burned at the remote mine to generate the current electrically, said transmitted current being used to burn up garbage which could in turn generate current for running or lighting or heating a trolley car.

Some of the leading uses of electricity are the following:—

1. Electrical heating processes as well as various heating and cooking devices of a domestic or industrial nature.
2. Electric lighting as in the arc lamp consuming usually small carbon sticks; the incandescent filament lamp; the vapor lamp in which a gaseous content becomes luminous.

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3. Electro-chemical processes for extracting metals or for plating.

4. Electric power by the application of the electric motor to driving machinery of all kinds.

5. Electric traction by which motors propel trolley cars, electric locomotives, mine trains, electric vehicles, escalators, and moving side walks or continuous platforms; traveling cranes, endless belts and package conveyors and telpherage systems; the hauling of towboats on canals; electric launches, and traveling dredges for working refuse ore dumps, etc.

6. All kinds of telegraphy and telephony depend upon electric current and there are electrical arts of healing as well as the devilish arts exemplified in the recent Great War of destroying men and the materials of warfare.

CHAPTER EIGHT

CITIES SERVICE FINANCE

By JOHN MILTON McMILLIN

Assistant Manager, Bond Dept. Henry L. Doherty & Co.

Where Does the Money Go? The purpose of our meeting today is to see if we can get a more practical idea of Cities Service Company. To some of our people the various official statements in regard to the Company seem complicated. We want to see if we can translate these things into plain, simple terms, so that we can understand them ourselves and so that we can explain them to others. We shall also discuss the question of why a prosperous company like Cities Service Company continues increasing its capitalization and raising further amounts of money from time to time. Some would say the earnings are so tremendous that this would not appear to be necessary. All of our people ought to understand these things.

In introducing the lecturer, Dr. Fuld said: When we tell our friends that we are working in Wall Street, they envy us because Wall Street is the land of promise, the land where fortunes are made. And when we tell them that we are connected with the House of Doherty, they envy us some more because there is no security on the Street which has a brighter future than Cities Service, and no house that can do more for its employees than the House of Doherty. But are we able to take advantage of the opportunities before us? Do we understand enough about the securities of our House?

Only two days ago, I received a petition from the women employees of the House, asking permission to give up a portion of their Saturday afternoon each week to learn more about our securities. They did not wish to become bond salesmen, but merely to learn more about Cities Service in order that they might take advantage of their opportunities. With their usual astuteness, these women had accurately sensed a need which all of us have felt indefinitely, and they were willing to give up a portion of their hard-earned leisure each week to learn.

With a view to giving all of us some of this information which we all need, Mr. J. M. McMillin, Assistant Manager of the Bond Department will talk to us today on "Cities Service Finance." Ladies and Gentlemen, Mr. McMillin,

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The simplest way for us to get some light on these matters is by the study of what conditions and problems we should have to deal with if we were trying to build up a business of our own.

We Will Start a Business of Our Own. Let us suppose that we who are here in this room hit upon the idea of going into the business of manufacturing and selling some article or other—furniture, for instance. To embark upon this undertaking, we should have to have among us, of course, some men who knew all about the business in a general way, some who were experts in buying the raw materials and making the finished products, others who understood where and how to sell the output, some who could run the office and keep the accounts, and, of course, among us all we should have to have the necessary money to inaugurate the business.

We Raise the Money. After preparing our estimates, we find that \$100,000.00 in cash is the amount needed with which to begin the business and operate it for the first year. We organize a corporation as the most satisfactory way that we can all go into partnership together. Our company will have but one kind of stock, for we are all taking the same risk and each of us will get an amount of stock proportionate to the amount of money furnished for the enterprise. We start out with all of us as Common stockholders.

We Take Common Stock and Some Risk. Now understand that we have gone into a speculation. We have no positive assurance of even a moderate income from this stock. True, we have made very careful estimates and the indications are that our money will earn 25%. But we have not yet demonstrated that this is a fact. We have put our money into this enterprise for the deliberate purpose of making a

profit out of it. We shall not let ourselves be concerned for a year, or possibly longer, with regard to the question of whether or not our stock can be sold on the market any day that we please at the price we are now paying for it. We are concerned with the future only. We think we can build up a profitable business and we take a certain amount of risk to achieve that end. It may be that we shall lose our money. Very often that happens in cases like this. But we will assume that in our judgment the risk is only a moderate one and is very much outweighed by the possibilities of profit.

Business is Good. So we start. We build our factory, put in our machines, stock up with some lumber and other materials, and begin turning out the product. Meanwhile we send our salesmen out on the road to make contracts for the sale of our goods. Our plans having been well laid, we find we can make a good product and that there is a splendid field for its sale, so that success rewards our efforts. Indeed, we are able to sell everything we can make and more too.

The Business Gets Ahead of Us. Under these conditions, where would we find ourselves at the end of the year? We would figure out that considering the manufacturing cost of the goods we sold, plus the cost of administration and commissions to salesmen, altogether left us still a substantial margin in comparison with the price received for our output. After thus calculating our earnings, we are pleased to find our original estimates confirmed by the fact that we have earned \$25,000, which is in fact the 25% which we expected to make on our original investment.

But on examining our bank accounts, we do not discover this \$25,000 to be there. Something else has happened in our business.

Where has this money gone?

Splendid Profits But Little Cash. The explanation is simple. Our business has grown. During the year we had to make a certain extension to the building or put in a few more machines. Some of this cash went for that purpose. Of course, this is not operating expense, for we still have an asset to represent the money which went into this extension. But it did take cash to do this just the same. At the same time we find that with our growing business we have to keep on hand a larger amount of stores and supplies than we use to. More lumber, more leather, more nails, etc., keep more cash tied up than was necessary at the start.

Plant Extensions Run Us Into Debt. Thus we have gone into a successful business, earned 25% on our money, and we have every reason to congratulate ourselves. But all of our earnings have had to be invested in the extension and growth of our business. It may even happen that we have ended the year in debt to the banks. Perhaps we had to borrow some more money in addition to our \$25,000 of earnings, in order to keep pace with the demands of our business.

Still We Need More Money. Now, what are we going to do? We have made a success and yet we need some more money, for we must pay the banks and, besides that, we can see it would be a good plan to increase our plant still more in order to take advantage of the sales opportunities which are open to us.

So Much Business We Don't Know What To Do. Of course, we could have another meeting and all of us might agree to buy some more of the common stock just as we did in the beginning, but we would immediately have a number of riddles to solve if we went about it in that way. There would be some of us perhaps who did not have any money available just now and they would object to the sale of some more stock to other people at anything like its original price. They would protest that the risk of the original subscriber

has been eliminated by the demonstration of the year's operations. They perhaps would demand that the new stock be sold at \$150 per share instead of \$100 per share, which was the original price. It might be that those of us who did have some money would object to paying any such price. So we would find it hard to agree. You can see that unless we were all prepared to buy the same amount we did in the first place, it would naturally follow that everyone's percentage of interest in the business would change.

We Want to Rent Some Money. The most obvious way to solve our problems is to sell some Preferred stock. We know that there are plenty of people who are satisfied with six, seven or eight per cent. investments, provided they can be sure that there is a reasonable assurance against loss. These people are not particularly anxious to go into partnership with us in our business of making this furniture, but they will let us have some of their cash if we pay a satisfactory rate for it, at the same time making reasonably certain of its safety.

We Sell Some Preferred Stock. Therefore, we put out say \$50,000 of 6% Preferred stock. The agreements we make in respect to this issue are, first, that we will pay the dividend upon it regardless of whether or not there may be any earnings left for us to distribute among ourselves, and second, we agree that in the event of liquidation of the business we will pay the Preferred stockholders in full whether or not there should be left anything for us. We seek out people who like this form of investment. We explain to them that we have demonstrated the success of the business, that we have a great deal of property now and that our earnings are running at a rate many times the amount necessary to pay dividends on the new Preferred stock, and we recommend this issue as a conservative investment. We frankly say to these people that their dividends will

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never exceed \$6 per share each year, but we do assure them that \$6 may be counted upon.

Of course we shall have to canvas for people who buy such investments, but we know they exist and we finally succeed in selling the stock. This furnishes the capital we need for our growth.

The New Capital Cost Us 8%. It may be that we had to sell this new stock at 75. If so, then we have to pay \$6 a year in dividends for each \$75 of cash we receive. In that event, this new money will be costing us 8%. But we can easily afford to do this, for we know that the \$75 will earn 25% when invested in the business. Why should we not? The difference between the earnings on this new money and the cost we have to pay to get it, will all be profit to us.

At the end of the next year we may again find that our business has outgrown the financial plans we made for it, and so we sell some more Preferred stock. Of course we would do that very thing. Recognizing our opportunity to build up a great business, we would certainly make the most of it.

We Sell Some Bonds. After a few years we find that we have a very large and exceedingly prosperous company. We have established our credit and our good name and again we find that we can use some new capital. But perhaps at that time it might be that the average investor has become more interested in bonds than in Preferred stocks. There are times when it is easier to sell one than the other. We should find that we had plenty of property at that time to furnish adequate security for a bond issue. We should have no fear of mortgaging the plant because now we are so fully in command of

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our business we know very well that we can meet the debt when it becomes due. Furthermore, we find that by selling bonds we do not have to pay quite so much for the money as we had to pay when we raised our new capital with Preferred stock. At that time we sold 6% stock at \$75 per share. Now perhaps we shall sell a 5% bond at a net cost for the money of 6%. So we go ahead. We who are so prosperous issue some more securities. We sell some bonds and increase the plant again.

We Keep Going Ahead. Meanwhile we have made a lot of money. The original speculative investment we made, has grown to be worth four or five times its original cost besides which we have been receiving very large dividends. There are other people who own Preferred stock in our business who actually have a claim ahead of us on the earnings and the assets of the business, but we are well satisfied with the arrangement. There are other people too who own bonds on our plant. These other people took far less risk than we did. Indeed, the bondholders took no risk at all. Accordingly, their share in the earnings of the business is very much less than ours.

Now you have seen why a prosperous, growing business keeps on raising money. This is exactly the explanation as to why Cities Service Company brings out new issues from time to time to raise additional capital, even though its earnings are enormous.

We Make It a National Enterprise. Let us go on with this furniture business. Why should we stop with this first plant? We have built up a dependable organization. We understand better than ever where and how to buy our raw materials. We have developed a strong demand for our products. We can see how to do a much greater amount of business. Quite naturally, therefore, we build another

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plant, at Grand Rapids perhaps, and others in various parts of the country, until finally we have, let us say, half a dozen. This enlarges the business not only, but also our problems of financing the growth of all these plants. We have to sell a Preferred stock issue or a bond issue on first one and then another, each time we have about a \$50,000 problem, or it may be a \$100,000 problem, to handle.

We Need To Finance at Wholesale. Right here it should be stated that it is much easier to finance on a large scale than on a small scale. You cannot very well go to an investment dealer with a \$50,000 issue and expect him to incur the expense of an examination by engineers, accountants and lawyers, to determine whether he wishes to retail the securities to his customers or not. His costs of this kind very likely would exceed the profit he could hope to make out of so small an amount of business.

All of our plants together need, let us say, \$500,000 this year. If we could put that problem into one deal we could easily find an investment dealer who would be glad to look into the matter.

We Form a Holding Company. Therefore, we form a holding company. We get up a new corporation, which we call the General Furniture Company, for instance. We give up all the Common stocks which we originally held on the half dozen different plants to this new Company, and we take back Common stock of the holding company in place of it. So far the result to us is very much the same. We still own exactly what we owned before. But we have designed a much more convenient instrument for financing the growth of our various properties.

We Sell Preferred Stock of the Holding Company. Perhaps the first thing we would do would be to sell some Preferred stock of our holding company. It will be salable for the same reasons that made it possible for us to sell our underlying Preferred stocks. Of course, this Preferred stock of our holding company will not be the direct issue of an operating company actually engaged in the manufacture of furniture. In that respect, it will be a little less attractive to some people than the kinds of Preferred stock we sold in the first place. But this new one will have an offsetting advantage, however, by virtue of the fact that its dividend will be assured from half a dozen different sources. This will make the new issue very much more attractive to a very much larger number of people.

Now you have the comparison with Cities Service Company practically complete. Cities Service Company is not in the furniture business, of course. Its properties consist of public utility companies and petroleum companies. But the similarity is much the same in the manner of its prosperity, its growth, and its problems of finance.

Do not allow yourselves to be disturbed when some critic says to you that Cities Service Company has too many securities outstanding ahead of it which were issued by the subsidiary companies. You saw how this worked out in our furniture business. The all-important question is what total amount of securities are there outstanding to what grand total earnings.

Cities Service Company. If you care to look at the last annual report of Cities Service Company, you will find that the combined subsidiaries had a business of about \$90,000,000 gross a year, out of which they had left in net earnings about \$30,000,000 a year.

Cities Service Company Goes On Too. Now let us compare the securities outstanding. You will find about \$100,000,000 of bonds of the subsidiaries outstanding in the hands of the public and about \$10,000,000 of subsidiary stocks also owned by the public. Add to these the various issues of Cities Service Company, being the Debentures, the Preferred stock and the Common stock, amounting, altogether to about \$125,000,000, and you have a grand total of all securities of approximately \$235,000,000. This is a good deal when expressed in dollars, of course, but when you consider the proportions you will note that the situation is remarkably strong. The combined net earnings are equivalent to about 13% on this whole capitalization. Obviously Cities Service Company can with profit continue to issue new securities so long as the new capital can be obtained at anything around six or eight per cent.

While I have no thought of trying to sell you any stock of Cities Service Company today, it is worth one more moment to point out to you a few facts in regard to its securities.

Cities Service Common Stock. Those of us who are confident of the future, make our investment in the Common stock of Cities Service Company, or the Bankers Shares, which are much the same thing. You must remember, of course, if you buy the Common stock you may not be able to sell it tomorrow or next month at the same price you paid for it. It may be higher or it may be lower. But if you can afford to wait, just as you did when you went into the furniture business, you will certainly make some money out of it in our judgment.

Cities Service Preferred Stock. Your own investment problems cannot very well be solved for you by other people. It may be that for your own purpose it is better to keep your money invested in

such a way that you can reasonably expect to sell out if you have to, in order to raise cash for some emergency. Under such conditions, of course, you will have to make more conservative investment and expect a more moderate return on your money. Cities Service Company Preferred stock is the more appropriate security for such conditions. Its price does not fluctuate very widely. The Preferred stock has ranged between a high price of 93 and low price of 67 during the time that the Common stock has ranged between a high price of 485 and a low price of 185. This range of quotations covers a very wide fluctuation in financial conditions.

Cities Service Preference "B" Stock. Right here let me say that this new issue of Preference B stock of Cities Service Company should be a great boon to many people. There are great numbers who can save for investment \$7.50 a week or month, and they will do very well to employ these savings in the purchase of the new Preference B stock of \$10 par value per share, and which at present may be had at a price of \$7.50 each. The dividend rate being 6% on the par value, the investment return on the purchase of that stock is, of course, 8%. One is very lucky to be able to invest small sums at such an advantageous rate of return.

The Rental Value of Capital Changes. One final word respecting changing quotations. Sometimes we are scolded because a man has bought Cities Service Preferred at 92 and now it is 76, for instance. He thinks this is our fault. Perhaps he protests that it is due to our having issued so many securities, forgetting for the moment how much better his Preferred stock now is intrinsically than it was when he bought it. The true explanation is that when he paid \$92 for an income of \$6 per year about three years ago, he could buy a pair of shoes with that same income. Now, with that income, he can just

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buy one shoe. As a natural result no new investor wants to pay quite so much to purchase a \$6 per year income, as he was willing to pay three years ago, for the simple reason that the income is not so useful as it used to be. In other words, the rental value of capital, like everything else, has been influenced by the rapid-fire changes of the last few years.

CHAPTER NINE

THE TOLEDO TRACTION SITUATION

By FRANK R. COATES

President of Toledo Railways and Light Co.

Introduction. I am just briefly going to give you some words on the Toledo situation, including the electric and gas as well as the traction business of that city.

Now, I appreciate very much the opportunity of being allowed to talk to this august body and, further, I am glad that Doctor Fuld gave me a subject; for if he had not I would have been somewhat in the position of the preacher who was called upon suddenly to deliver a funeral sermon, and in his haste he forgot to ascertain the sex of the corpse. He realized this about the middle of the sermon and leaning over he whispered to the chief mourner, "Brother or sister?" The chief mourner looked up and said, "No, cousin."

Now, you people sitting down here sometimes envy the one who has to do the talking; but I want to tell you that the talker feels about like an Irish friend of mine who was being ridden out of town on a rail, and he remarked that if it wasn't for the honor of it he'd a great deal rather walk.

In introducing the Lecturer Dr. Fuld said: We residents of New York are inclined to charge our acute traction situation to our present city administration. That the causes underlying this situation extend over a wider territory, however, than New York is evidenced by the fact that other cities, notably Toledo, have been struggling with the same problem.

Toledo has handled this situation in a unique manner. It was handled by Henry L. Doherty, through his lieutenant in the field, Frank R. Coates, President of the Toledo Railways and Light Company. It was handled in such a manner that it caused the world to sit up and take notice, and many a person has said prayerfully, "Would that we had a Henry L. Doherty to handle the New York traction situation."

Ladies and gentlemen, Frank R. Coates is here from Toledo to-day to tell us something about the Toledo situation. Frank R. Coates.

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I am going to take the liberty this afternoon—as Doctor Fuld has impressed it upon me so strongly and also Mr. Bump and Mr. Scott and others, that I shall be through prior to five-fifteen—of reading to you the notes that I have made.

You know, when you start to talk on this Toledo situation, a person is liable to talk from now until midnight and then not get the whole story out. And for that reason, and again so that I will not miss any of the salient points, I am going to take the liberty of reading the majority of it to you.

You know, sometimes people get forgetful when they have not their notes. That brings to my mind another occurrence of an English clergyman. You know over there they do not do things quite as rapidly as we do them here. Take for instance getting married. In this country, you go to the minister and he says, "John——" this is not referring to John Mc Millin now—he says, "John, you take Mary? Yep. Mary you take John?" Yep. Go on home, five dollars, please."

Now, you know, over in England it is a little different. I remember a rector one time who was new in the ministry, and he had his first wedding to perform. He thought he had that ceremony memorized perfectly. He went to the church and as he saw the bridal party approaching the ceremony began to drift away from him, and finally when the bride and groom and the rest of the party got up to the chancel every confounded thing of that service had left his mind and he thought a minute for some appropriate verse of Scripture, and ALL he could think of was, "Oh, Father, forgive them, they know not what they do."

City of Toledo. Toledo has received a great deal of advertising, some favorable, some otherwise. I do not want you people to picture Toledo as a town of turmoil, a city of the older western type that you read about in history. We are just like any other American city or town. We have our churches, schools, libraries, art galleries, business section, industrial section, and no saloons.

Toledo was the first metropolitan city over the top in the Third

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Fourth and Fifth Liberty Loan campaigns. Toledo has a population of 244,000 people and has in the neighborhood of six hundred industries. We are the third largest railroad center in the United States.

There are ten separate and distinct interurban lines running into our town and twenty-one distinct divisions of steam railroads. We have a navigable dock frontage of twenty-five miles.

On our city building is the largest three overlay electric sign in the world, and our own office building, as we understand, is the largest building with electric outlining. Both of these were conceived by Mr. George Williams of this organization.

We are nationally known for a number of our activities. Take for instance, the Overland. At present they employ sixteen thousand persons, and turn out over eight hundred machines per day. As soon as the transportation of steel and other raw materials is improved, they will turn out one thousand cars per day. At the present time they are the largest individual users of electric current supplied by a central station, the largest users of central station power in the world, using to-day twenty thousand horsepower.

Toledo is the largest clover seed market in the world. Also we are within one hundred miles of the center of population of the United States. It is the home of many nationally advertised articles such as Willys-Overland automobiles, Champion spark plugs, Libby Plate Glass, Milburn Electric Cars, Creolite Floors, American Can Company cans, National Supply Company products, Toledo Scale Company scales, Milburn wagons, DeVilbiss atomizers and paint sprayers, Owens bottle machines, American Bridge Works products, Gendron bicycles and wheel chairs, Haughton elevators, Woolson Spice Company products, McNaull tires, and Hull umbrellas. These are a few of the activities of Toledo.

Newsboys Association. I do not want to pass this general description of what we have there without calling attention to the fact that Toledo was the originator of the Newsboys Association movement. That is a great work. We have at present a building that

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houses for their amusement and instruction two thousand newsboys. This was built and is maintained by a number of the generous citizens. On a Sunday it is well worth a visit to this institution to see fifteen hundred or two thousand of these boys being entertained by the different organizations of the city. These entertainments consist of talks and vaudeville entertainment.

I recall one Sunday not long ago—well, I say not long ago; this was several years ago—I was sitting there, and one of our old trustees was in a very dignified way explaining how any of these boys could become president of the United States. Well, most of them knew it was bunk, for the simple reason that most of them were foreigners. The little fellows were pretty attentive, but after he had talked on this subject of being president for a number of minutes and they thought he was about through and going to sit down, he went down into his papers and pulled out a sheaf of foolscap said, "Now my young gentlemen, I would like to begin my talk of the day to you."

That was more than two little kids down in front could stand, and they looked up and saw back in the wings a fellow we knew as "Gunck," and one of them cried out, "Hey, Gunck, give the big guy the hook." And that is the way they would receive anyone who did not suit them.

Now, "Gunck" was known to these newsboys by that familiar title. He was John Gunckel, the founder of this organization. He would be known to you or myself as Mr. John Gunckel, or Commodore Gunckel; and I tell you he did a wonderful work, and when he died—I can see that sight yet—fifteen hundred newsboys following his body to the grave through a heavy rain four miles to the cemetery, each boy with a stone in his hand; and when the services were over each little fellow deposited the stone at the head of Gunck's grave. That was erected into a monument twelve feet high, and that was the newsboy's monument to the founder of their association.

Toledo Railways and Light Company. The Toledo Railways and Light Company is divided into six major departments: there are the electric, gas, street railway, auditing, new business and heating

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departments. We were very fortunate in the last year to have all these housed in one office building. That building is six stories in height, and, without going into too much detail, I would say that in the basement we have a sub-station for downtown distribution of electricity. There are also our employment office, and storeroom for the new business department located here. On the first floor we have the finest show-room we think there is in this country for new business display. In addition there are also the cashiers' cages, Information Department, rest room for women, lamp counter, etc. The second floor is entirely devoted to the Auditing Department; the third is the executive floor; the fourth the Railway Department; the fifth the Electric Department, and the sixth to a joint section meeting room, ticket counting, new business department meeting room, and a large auditorium where various meetings are held, an auditorium possibly a little larger than the size of the one we are in today.

Electric Department. I would just in a few words like to tell you what has been done in the Electric Department. Reviewing the history of the Light and Power Department of our company since the Henry L. Doherty Company took it over in 1913 discloses some startling facts in the way of improvements necessary to meet the demands of the city, whose natural growth is way above the average American cities. The barometer which indicates this growth is shown best by the increased number of customers.

In 1913 there were 13,180 meters. The December, 1919, record shows a gain of nearly two hundred per cent, in actual figures approximately 38,800 meters representing a capacity or connected load of nearly 100,000 Kilowatts, as compared with 36,000 kilowatts in 1913. The reason I go back to 1913 is because it was the year that Henry L. Doherty took hold. This may be better understood by comparing the output in kilowatt hours for 1913, which was 82,500,000, and for 1919 174,800,000, or a gain of 111 per cent. This is productive of a gross revenue in 1919 of \$3,230,949, as compared to the gross revenue in 1913 of \$1,184,461, or an increase of \$2,046,488, or 172 per cent.

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We have increased our conduit system in the past seven years nearly 100 per cent, which now has 1,500,000 feet. This was made necessary partially by reason of our big demands for power on the outskirts of the city, which necessitated the installation of approximately thirty miles of 25,000 volt cable, the first of which was installed in 1914 by reason of the demand of 1200 kilowatts at the Overland plant, and showed signs of rapidly increasing to a point beyond the capacity of any aerial lines that could be built within the city limits. This one factory has increased its demand from 1200 kilowatts in 1913 to 16,000 kilowatts, and before the year is out may reach 18,000 or 20,000 kilowatts.

This system also serves to operate more economically our Detroit Avenue station, which is operated as a heating plant in the winter and shut down in the summer, caring for its load through this cable system.

A word might be said as to the personnel for caring for this system. There were some 200 employes in 1913, where the pay roll now for the electric department is represented by 474 employees. This is necessary by reason of operating the system more efficiently, both in operation methods, of designing construction, caring for the records and statistics which have proven themselves valuable in every way.

The Standard Oil Company, is building a plant claimed to be the largest in the world, in which, it has been said, it will centralize its oil refining business, and it will at least be the headquarters of the Standard Oil Company in Ohio. No opportunity is given for expansion in Cleveland and with the resources available here they have given Toledo this attractive industry.

There is estimated an increase in gross electric revenue, that will appear on our books one year from today of nearly one million dollars, of which, one-third is actually signed up as new industries that will come on our system within nine months.

Gas Department. Now a few words about the Gas Department. At the time the Doherty interests took over the Rail-Light, the

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sales were running about 14,000,000 cubic feet per month, 10,000,000 cubic feet domestic and 4,000,000 cubic feet industrial. On account of the natural gas competition, we devoted our time to the industrial end and we were able to increase the industrial sales to 13,560,000 cubic feet for the month of December, 1913.

During the year 1914 we sold 267,000,000 cubic feet, giving us a gross of \$184,567. We continued our efforts on industrial sales during the years 1915 and 1916, and were able to increase our gross for the year up to \$252,000.

The latter part of 1916 the coke oven gas from the Toledo Furnace Company became available, and a concentrated effort was made to interest the large industries in gas to replace oil. Through the untiring efforts of Mr. Loebell and his industrial heating engineers we were able in the latter part of 1917 to connect up a large part of the Overland and the new plant of the Mather Springs Company. During the early part of 1918 the old plant of the Mather, together with a part of the Libbey Glass Company and practically all of the heating operations of the National Supply, Doehler Die Casting Company and Bock Bearing Company were taken on, with the result that during 1919 our sales increased to 1,882,000,000 cubic feet and a gross of \$704,297. Please note the increase in five years, from a gross of \$184,567 in 1914 to \$704,297 in 1919.

It might also be interesting to know that the results obtained in 1919 were under adverse conditions, owing to the strike at the Overland and Bock Bearing plants.

At the present time we are up to the output of the Furnace Company and are not taking on any more large industrial customers.

I might add here that experiments are being made that will revolutionize the manufacture of gas in Toledo at this time.

Monday, February 16th, our output was 9,843,000 cubic feet which is the largest 24-hour send-out in the history of the company. About two-thirds of this amount went out between 6 a. m. and 6 p. m., and it was necessary to make 445,000 cubic feet of water gas in our own plant, in order to keep the holder out of the pit.

Now, I know some of you ladies may not be interested in that,

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but Mr. Weber asked me if I would not put in something about the gas at Toledo. He is very proud of it.

Railway Department. In the Railway Department we have 120 single track miles. Since 1913 we have replaced single track on various lines by double track to the extent of six miles, and we have done considerable rehabilitation work in the same time.

The city has just completed a valuation of the street railway property and it indicates that same is in 85 per cent efficient condition. In 1913 we had 230 cars, today we have 325; but about 40 of these have been discarded within the past few years, most of which are single truck cars that have outlived their usefulness. In 1913 we purchased 30 pay-enter cars and in 1916 we added 66 cars of the front entrance center exit type, as well as rebuilding 10 single truck cars in our own shops into large double truck cars.

We have been gradually installing the pay-enter system, and today nearly all of our cars are not only pay-enter operated, but are also equipped with fare boxes. And I want to give you a tip that the conductors can beat them also.

In 1913 we carried 48,000,000 paid passengers; in 1917 we reached our peak of 57,000,000, which dropped to 52,000,000 in 1919. In 1913 we carried 13,000,000 transfer passengers, in 1917 17,000,000, and 12,000,000 in 1919. In 1914 we carried 45,000,000 paid passengers, and at the same time carried about 10,000,000 passengers free of charge due to the three-cent fare controversy. Our revenue has steadily increased from \$1,900,000 in 1913 until in 1919 our gross earnings in the Railway Department amounted to \$3,000,000.

Early History. On June 29th, 1901, the Toledo Railways and Light Company was incorporated. In July, 1911, the Council of the City of Toledo adopted an ordinance to charge \$250 a day rental of lines where franchises had expired unless three cent fares were given.

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On January 4th, 1912, holders of mortgage bonds brought suit in the United States Court for receivership. This was brought about by the City's insistence on a straight three-cent fare for the entire day. The lines had been charging three-cent fares in workingmen's hours, one each in the morning and evening. Upon the City agreeing with the bondholders' representatives to extend the workingmen's hours in the morning and evening so that three-cent fares could be used from 5:30 to 7:30 in the morning and from 4:30 to 6:30 in the evening, a compromise was made and the receivership not pushed.

Purchase By Doherty. Now we get down to the facts with which I think a number of the gentlemen here are more or less familiar. It brings us to April 1913 when Henry L. Doherty & Company came into possession of the property and inherited a political fight of a dozen years' standing, during which time nearly all of the mayors had come into office on a platform of three-cent fares during the entire twenty-four hours of the day.

The taking possession of the property was about as strenuous as the majority of the activities that we have had since that day. The stockholders were holding out against the proposition offered by Henry L. Doherty and Company. Mr. F. W. Frueauff came to Toledo to adjust matters. He attended a directors' meeting with me and when the meeting was over I was minus a position. And they did it very smoothly. I found out that that kind of a thing is not so painful to take, after all, if you have Mr. Frueauff along with you.

Mr. Frueauff in a very masterful manner endeavored to show the directors the mistake they were making in not turning over the property and living up to the agreements that had been previously made. When we left the meeting Mr. Frueauff in his cool, deliberate way, said, "I will have to get busy and get the property." Thirteen days after we were thrown out we took possession with the aid of the Court.

I won't make any mention of that. Mr. Bump and some of the others may feel homesick to think of the gang of associates they took along with them to take possession of the property. They

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were the roughest roughnecks we ever saw in Toledo.

Fare Controversy. In December of 1913, City Solicitor Schreiber introduced a three-cent fare ordinance that was to become effective March 27th, 1914, when all franchises of the street railway company would have expired. This legislation passed without any notice to the Company or without it being heard.

On the evening of March 26th, 1914, the radical element of the City held a meeting in Memorial Hall for the purposes of agitation against the Company. Mr. Doherty attended this meeting; he was a stranger in Toledo at that time and sat in the rear of the hall. At an opportune moment he arose, addressed the Chairman, stated that his name was Henry L. Doherty and that he would like to be heard. There were cries of "No, No," and the Chairman refused to recognize his request. The next evening he hired the same hall and on the short notice that was given filled same, was given respectful attention by his hearers and made a great impression upon all.

Free Rides. At midnight of March 26th the new order of things was to become effective. No one knew of the stand we would take. Mr. Doherty had instructed the President of the Company to issue sealed orders to all conductors, inspectors, superintendents and Manager of Railways, to be opened at midnight of March 26th. When they were read the conductors were informed that they were to insist in a polite manner on the regular fare being paid, which was five cents cash fare, six tickets for a quarter, three cent fare during two hours in the morning and two hours in the evening and that if any positively refused to pay the regular schedule of fares and presented three cents, they were to be carried free.

This condition of affairs extended from March 27th, 1914, until September 15th, 1914, during which time only about twenty per cent of the riding public took advantage of the opportunity to get transportation free. Some people even went so far in order to have three cents in their possession as to have them pasted upon a card, and pulled their card out and showed it to the conductors; others wore

them outside on their coats. Oh, there are all kinds of crooks up there.

Publicity Campaign. At this time Mr. Doherty inaugurated his celebrated publicity campaign. This was probably the most unique in the history of advertising. He took entire pages every day and under the heading of "So the People May Know" discussed the problems with the people. He used the language of the streets, so that the people could understand. He invited criticisms and every one which came in to him and every one sent to a newspaper he reprinted in his page and answered it.

His talk on "Why I am on Wall Street" and the ones on "Municipal Ownership" are classics. The talks were reprinted in a large volume and the entire edition of 2,000 has been exhausted and fourteen of the leading educational institutions of the country wrote for copies to use as text-books in their classes on advertising.

So effective were the talks that although the city told everyone they could ride free on our cars, and even guaranteed police protection to anyone who proffered only three cents, nearly eighty per cent of the riders voluntarily paid the fare we asked, that of five cents. Mr. Doherty's talks, however, were so frank and fair that they carried the great bulk of the public with them.

On February 4th, 1914, the Council refused to consider the question of a new franchise patterned after the Taylor plan of Cleveland, or to give any consideration towards a valuation of our property being made.

On March 19th, 1914, the Council refused Mr. Doherty's request to extend the Schreiber Ordinance until a valuation could be made.

Federal Injunction Proceedings. On March 26th the Company asked for an injunction in the United States Court against the operation of the Schreiber Ordinance, and the Court held that the Company could charge an adequate fare.

On August 4th, 1914, an election was held, inaugurated by labor

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unions, which showed a majority of 1100 in favor of municipal ownership.

On August 12th, 1914, Judge Killits entered a permanent injunction against the three cent fare ordinance.

On November 2nd, 1915, the Dotson Ordinance was defeated at the polls by a majority of 6,000. This ordinance had been prepared very carefully by a council committee headed by Councilman Dotson and Mr. Doherty after conferences lasting for a number of months.

Then Mayor Milroy appointed a commission which worked with Mr. Doherty for a number of months on the community traction plan. This commission made its report to Mayor Schreiber when he took office, but nothing further has been done with it.

Labor Troubles. In March, 1916, the street car men were organized. At this time we had a thirteen day strike during which not a wheel turned, and it was the beginning of what is known as the peaceful strikes of street railway men. Every car was put into the barn and not moved until after the strike was settled. Not a pane of glass was broken and not a person injured during these days when Toledo walked or rode in vehicles of all kinds and descriptions.

In April of 1917 there was another increase in wages, as per contract agreement made in April, 1916, and this 1916 contract covered a period of three years and they were given raises each year. At this time no increase in fare was made, the workingmen's fares having been abolished at the time of the April 1916 settlement.

In May, 1918, the Court gave the men another increase in wages, due to the high cost of living at that time, and raised the fares to five-cent cash fare with a one-cent charge for transfer.

In July, 1918, Mayor Schreiber asked for an injunction against the one-cent charge for transfer. This was refused by the Court.

The contract with the unions having expired April 1st, 1919, and the company not being able to agree with the union representatives

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on their demands, the entire question was referred to the War Labor Board. It might be added here that this case was one of the very last heard before the War Labor Board was dissolved. Due to the war conditions the wages were increased materially, and it was necessary for the Company to increase its rate of fare to six cents cash fare with a two-cent transfer charge, in order to meet its obligations. This went into effect June 25th, 1919.

Ouster Proceedings. Mayor Schreiber immediately introduced an Ordinance in the Council to throw the Company off the street. This was passed by the Council and was to become effective July 31st, 1919.

On July 30th of the past year the citizens filed a referendum petition against the ouster, which carried it to a vote of the people on November 4th. On Election Day out of thirty-five thousand votes cast for and against the ouster, the same carried by an 800 majority. According to our legal authorities, the Company had no rights on the streets immediately upon the closing of the polls at election time; but the vote on this question was not known until the afternoon of November 8th. As soon as it was officially given out, Mr. Doherty, who was in Toledo upon that day, gave instructions to take all of the rolling stock from the city into the State of Michigan.

The Company has two interurban lines running into Michigan, one of them is the Toledo, Ottawa Beach and Northern Railway, and the other is the Toledo and Western Railroad. It was upon these roads that we placed everything that had wheels under it and was the property of The Toledo Railways and Light Company and could be moved. The movement of cars started about seven o'clock Saturday night, November 8th, and by 1.30 Sunday morning November 9th, every piece of our rolling stock with the exception of twenty crippled cars which could not be operated were safely resting upon side tracks in the state of Michigan.

On November 10th, 1919, the Council voted not to repeal the ouster ordinance.

On November 11th Mr. Doherty returned to Toledo, having been

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called to Kansas City on November 8th, and actively took hold of the situation. He was besieged by different interests to bring the cars back, but to all such appeals he stated that in his judgment no permanent settlement of the traction situation could ever be made with the cars in the city. He repeatedly stood firm not to return the cars until the entire question was definitely and permanently settled.

Return of the Cars. The city, while it had ordered the cars off the streets, seemed very much hurt that the Company had obeyed a legal order, and city officials appealed to the Federal Court Judge who, on November 20th, ordered both the City and the Company into his court. Conference after conference followed, and on December 1st Judge Killits decided that the City must act to give the Company authority to bring the cars back.

On December 2nd the Council amended the ouster ordinance to postpone its operation for ninety days. After further argument Judge Killits issued an order for us to immediately return the cars and operate them. At the same time he appointed a commission of seven business men to assist the City in preparing a cost of service franchise, and another commission of seven men to prepare a municipal ownership franchise. This order was issued at six o'clock in the evening of December 4th. At 12.30 on the afternoon of December 5th the cars started to return to the City. Federal Judge Killits was the motorman on the first car.

Service at Cost Plan. Previous to this time, practically since last Spring, the Company represented by Mr. Doherty and Mr. Bailey had been in one session after another with the Mayor and the Director of Law of the City in the preparation of a service-at-cost plan. It was presumed that the foundation which had been laid by these conferences, which was a service-at-cost plan nearly perfected, would be taken up by the commission appointed by the Judge and rapidly whipped into permanent form.

The service-at-cost commission had its first meeting on December 6th, and ever since that time has been working on the plan.

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Same has been changed so as not to be recognized as being any relative of the Taylor Grant of Cleveland, which originally had been used as the pattern. If it is a relation at all, it surely is not by blood but by marriage. This plan within the past couple of weeks has been completed and handed to Mr. Doherty for his consideration.

Last fall Mr. Doherty agreed to loan the City \$25,000 to defray the expenses of a valuation. This now has been completed, but not agreed upon between the City and the Company.

The municipal ownership commission found a number of legal obstacles, and through the Legislature and courts they endeavored to have these ironed out. Up to this time, however, they have nothing definite to present.

The Future. We are all of us most sanguine of success in Toledo. We are not easily discouraged because we have absorbed the optimism and enthusiasm of the Doherty Organization. We have endeavored to apply its principles in Toledo. We know they will work and we know they will ultimately win, because they are fundamentally right.

We have been greatly handicapped in having the troubles and tribulations of the old company thrust upon us, but we have in the past successfully ironed these out by convincing the people that we were a partner in every success the City makes, and without a thriving public utility company it cannot hope for a continued success.

We are convinced that if given the opportunity of putting into effect all the Doherty service ideas, we will build up in Toledo a public utility company that our Organization not only may well be proud of, but the City as well.

Conclusion. In some of the dark hours of the past we have never lost heart nor our temper. We are enthused by the spirit put into the fight by Henry L. Doherty, who is never known to quit when he knows he is right, and whose unfailing fountain of good nature has

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kept us all buoyed up with a spirit that enabled us to keep plugging away every day. Better than all this is to do as Mr. Doherty is always doing,——“Keep smiling.”

Just remember the word “smiles” is the longest in our dictionary. Yes, I know there are only six letters in it, but there is a mile between the first and last letters. It’s a great help, this smile tonic. It will bridge you over many a difficulty, and “The Pride of Workmanship” and “The Price of Service” coupled with a radiant countenance, makes a combination that will win every place where the Doherty emblem is established.

CHAPTER TEN

THE NATURAL GAS INDUSTRY

By HOLTON H. SCOTT

General Manager of Operations, Henry L. Doherty & Co.

Introduction. In beginning I desire to state that I do not pose as a natural gas expert. It was my good privilege early in 1912 to come in contact with the various people who were at the head of our natural gas properties and to have visited all of our natural gas holdings during the year 1913.

One of the most interesting times I have ever experienced was a two months' visit in Oklahoma and Kansas in the Summer of 1913, the larger part of which time was spent in what are now the great natural gas and oil fields in that District. The members of the party on various trips were Messrs. McDowell, Diescher, Straight, Carpenter, and yours truly. If I were to attempt to tell you only a portion of the discussions and predictions made at that time, it would sound like a story from the Arabian Nights. Since 1913 I have made many trips over the properties in that territory—so well named, Empire, and each time I have been even more impressed by the

In introducing the lecturer Dr. Fuld said: Almost daily in our work we find reference made of natural gas. What is natural gas? Is there any natural gas in New York City? How does it differ from the gas we use? Is it more economical? Is it more efficient? Has it any unpleasant odor? These and dozens of other questions regarding natural gas have arisen in our minds many times. We have been unable to answer them, and we did not know where to turn for an answer. Our Organization is fortunate in having a man who is not only regarded by us as an expert on natural gas, but enjoys this reputation throughout the country. Ladies and gentlemen, Mr. H. H. Scott.

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magnitude of the organization of the Holdings, and the foresight of the builders of the Empire.

However, I must confine my remarks to the subject assigned, and therefore I am going to try to put each one of you in my place to see if the various matters that attracted my attention, might not interest you.

The natural gas and oil business now forms a considerable percentage of the total business of Cities Service Company. Many people, even in our own Organization, think that the decision to enter this field was made suddenly, but to my knowledge, the step had been considered for many years before it was taken. Mr. Doherty having been connected with The Artificial Gas Company, at Columbus, had seen the early developments in Ohio. Natural gas was taken into Columbus, and, of course, it did away with the manufacture of artificial gas.

Before giving you a very short history of the development of this industry, it might be well to attempt to explain to you some elementary matters.

What is Natural Gas. 1st—What is Natural Gas? Metals, as you probably know, consist principally of carbons or the combinations of carbons with some other element. Water consists of two parts hydrogen and one part oxygen. It is the now generally accepted theory that natural gas was formed by water being decomposed into hydrogen and oxygen, and the hydrogen coming in contact with the molten metals, formed a combination of hydrogen and carbon, which as a matter of fact is the principal ingredient in natural gas. A previous theory, held for a long time, was that natural gas was formed by the decomposition of vegetable matters. In this connection it may be stated that coal deposits have nothing whatever to do with natural gas deposits. As a rule the coals that are mined for commercial uses are found at depths much shallower than natural gas.

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Natural Gas has a heating value of 1,000 B. T. U's. The general standard for the present artificial gas manufactured is approximately 600 B. T. U's. Natural gas is odorless and will not give any illumination when burned in an open burner, while artificial gas as you know gives a luminous flame when burned in an open tip.

Gas Fields. 2nd—Life of wells and fields? This is a question that is continually asked by people who are not familiar with the various developments. It can be stated in a general way that the life of the individual well depends, first, upon the number of wells drilled per acre in the particular field and the rapidity with which the gas is drawn from the well; second, the density of the sand, that is the fineness or coarseness of the sand; Third, care of the wells. S. S. Weyer, who was connected with the Natural Gas Division of the Fuel Administration has stated in a recent booklet that the average life of all natural gas wells throughout the United States has been eight years, while the life of the natural gas wells in the State of Ohio has averaged only five years.

At this point it might be well to explain that the amount of gas delivered by an individual well while open to the atmosphere is designated as the "Open Flow," and in no case is it ever possible to draw from the well the total amount of the "Open Flow." The percentage drawn from the well is usually from 10% to a maximum of 30%, the variations being dependent upon the density of the sand.

The rock pressure of a well is the pressure in square inches, shown by an ordinary gauge when attached to the well when closed in. This pressure corresponds in a general way to the hydrostatic pressure; that is, if a well is 1,000 feet deep, the initial rock pressure is 500 pounds. If a well is 1,500 feet deep, the pressure is roughly 750 pounds. In other words, the pressure in pounds is approximately one-half the depth of the well in feet.

Where our Companies own solid blocks of leases, it is customary to drill about one well to every forty acres.

Gas leases are generally taken upon the following conditions.

The Company agrees to drill the acreage within a specified time, and failing to do so, agrees to pay a rental charge for acreage a year, amounting to from 10 cents to \$1.00 per acre. After the well is drilled the lessee (usually a farmer) obtains a fixed amount a year per well regardless of the volume of gas drawn from the well. This varies from \$50 to \$300 per well per annum.

Production, Transportation and Distribution. The furnishing of natural gas to the consumer may be divided into three parts; namely: 1. Production. 2. Transportation. 3. Local distribution. The arbitrary division made by the early natural gas people was that the producer should receive one-third of the selling price of the gas, the pipe line company, (that is the company that takes the gas from the fields to the village, town or city), should receive one-third, and the company that distributes the gas in the community should receive the balance, or one-third. This arbitrary division may have been equitable with the early developments, but as time went on and the developments were further removed from the marketing centers, the pipe line companies had to continually increase their investments, and therefore are entitled to a greater percentage than 33-1-3% of the selling price of gas. I will touch on the matter of rates later in a very brief way.

When the gas fields are first drilled, the rock pressure is sufficient as a rule to transport the gas a considerable distance. As the gas is drawn from the fields, however, the pressures decline and it is then necessary to install compressor stations to raise the pressure from 100 or 150 pounds per sq. inch to, say 300 or 350 pounds. In this manner it is possible to transport gas great distances, and in our Oklahoma-Kansas fields, we are transporting gas a maximum distance of 300 miles, or over twice the distance from New York City to Albany.

Undoubtedly you know that we maintain a large geological corps, especially with the Empire Gas & Fuel Company at Bartlesville. Although we cannot claim credit for being the pioneers in this line of work, yet it is a fact that we probably have organized a more complete geological department than any of the large operating com-

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panies. I have never heard any of our people claim that geologists could absolutely state where natural gas or oil could be found, but they do claim that these people can find or locate in a general way, structures where there is a likelihood of these products being found. Their job is to find the folds of the likely bearing oil and natural gas sands.

At this point it may be interesting to show you one of the typical folds shown in a diagrammatic way, where natural gas, oil and water are located. These folds are usually referred to as domes, and the axis of the highest points is termed the anticline, while the axis of lower levels are referred to as synclines. Gas being lighter than oil is found at the top of the dome, and oil being lighter than water and heavier than gas is located between the levels of the natural gas deposits and the water deposits. You can readily see from the diagram as will be pointed out to you by Mr. Creveling that at this point you would obtain gas, and at this point you would obtain oil, and at this point water. Again if you drill at this point, you would have a dry hole.

Before describing our own properties it might be interesting to you to know that gas is produced and sold in twenty four States of the Union, and that in 1917 there were in round numbers 795,000,000,000 cubic feet of gas sold to 2,430,000 domestic consumers and 18,600 industrial consumers. Cities Service Company through their holdings, to be described later, sells approximately 10% of the total amount of the natural gas produced in this country. The States in which the largest amounts of natural gas are sold and the year of first recorded production are in the following order:

Ohio	1885
Pensylvania	1882
Kansas	1889
West Virginia	1885
New York	1885
Oklahoma	1902
California	1889

You will note from this that gas has been produced in Kansas for thirty years, and in Ohio and West Virginia for thirty-four years.

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Notwithstanding the fact that gas was first produced in Ohio thirty-four years ago, practically every hamlet, town and city in Ohio is now using natural gas. However, a considerable percentage of this gas sold in Ohio is now piped from West Virginia. The total value of the natural gas produced in this country for the year 1917 was approximately \$142,000,000.

When we first entered the natural gas and oil business, many of our timid investors thought that we were engaging in a hazardous business, and I have often taken great pleasure in asking them to tell me what is one of the greatest business institutions in this country. Of course, the answer is—The Standard Oil Company, which as you know was founded on this presumably hazardous business.

Canadian Group. The Canadian group of Doherty natural gas properties, supplying the eastern part of the Province of Ontario and along the shores of Lake Erie, is supplied from two fields. The Eastern Field, known as the Selkirk Field, was first developed about thirty years ago. At one time gas was exported from this field to Buffalo. The depth of the gas sands in this field varies from 450 to 600 feet. The sand is very dense, and although the wells are never very large in volume, the life of the individual wells and the field has been quite remarkable. It is the theory of Mr. McDowell and others that there are great gas fields under Lake Erie and that this gas migrates northeasterly to the Selkirk Fields, which partly explains the long life of this field. The other source of supply is the Glenwood Field—here the sands are found at a depth of 1,200 feet, and the character of the gas is entirely different from that found in the Selkirk Field, in that it has a considerable percentage of sulphur. To the west of the Glenwood Field is the old Leamington Field, which at one time supplied the City of Detroit with natural gas. Cities Service Company owns the distributing plants in Woodstock and Ingersoll, and owns 85% of the stock of the Brandford Gas Company, the remaining 15% being owned by the municipality. The largest market for our Canadian properties is the City of Hamilton, which has approximately 82,000 population. The distributing company in Hamilton is not owned by Cities Service Company. The main pipe lines, which you see, supply gas to one hundred and eleven towns and Cities which have

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approximately 235,000 population and 47,000 customers.

Ohio Group. The Ohio Group of properties are the Medina Gas & Fuel Company; the Berea Pipe Line Company; the Buckeye State Gas & Fuel Company, and the Columbus Natural Gas Company. Other than about fifteen towns on the eastern end of the Medina System, the Medina Company sells wholesale to local companies who distribute the gas. The largest of the local distributing companies is the Lima Natural Gas Company, which distributes gas in the cities of Lima, St. Marys, Celina and Wapakoneta. The Medina Company obtains this gas principally from the following counties: Medina, Wayne, Holmes and Ashland.

The Berea Pipe Line Company, which is tied in with the Medina Company, produces gas in Cuyahoga County and distributes gas in five towns which are: Berea, Elyria, Strongsville, Parma and Brooklyn Heights.

The Buckeye State Gas & Fuel Company produces gas in several counties in the eastern-central portion of Ohio and their principal market is the Coshocton Gas Company, of Coshocton, Ohio, which company is also owned by Cities Service Company. The last member of the Ohio Group is the Columbus Natural Gas Company, which produces gas in Licking County, and its principal market is in the City of Columbus. This pipe line, as shown on the slide, runs to the outskirts of Columbus where it delivers gas to the Ohio Fuel Supply Company which in turn sells to the local distributing Company in Columbus.

Oklahoma-Kansas Group. We now come to the principal group of our natural gas companies; namely, the Oklahoma-Kansas Group. This group is a consolidation of a number of companies which were formerly owned by different interests. The first properties which were acquired in 1912 by the Cities Service Company were the Wichita Natural Gas Company, supplying gas to Wichita, Newton and Hutchinson, Kansas, and a number of other smaller towns, the largest

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of which are Wellington, Winfield, and Arkansas City; and the Quapaw Natural Gas Company, which supplies gas to the Joplin, Mo., District and Carthage. After the acquisition of the Wichita Natural Gas Company and the Quapaw Natural Gas Company; Cities Service Company acquired the Portland Pipe Line Company. The latter company obtained its gas from the Hogshooter Pool and supplied the industries adjacent to Iola, Kansas. At that time the principal supply of gas for all these companies was the Hogshooter Pool just east of Bartlesville. The supply of gas was rapidly diminishing and the then owners faced a large additional investment in the way of pipe line extensions to obtain increased gas production. I might also state that with the purchase of certain interests in the Quapaw and Wichita Natural Gas Companies, we acquired a number of small oil companies operating in the vicinity of Bartlesville, also a majority interest in the stock of the Indian Territory Illuminating Company, which had certain rights on all natural gas and some of the oil produced in the Osage Indian Reservation. The physical value of the natural gas properties and the market that they had obtained for their product made the purchase of these properties very desirable, provided additional supplies of gas could be secured. The first problem therefore was to find new natural gas fields, and the first step was the formation of a geological department. To keep down our investment, we looked for a supply of gas adjacent to our big markets; namely, in Wichita and Hutchinson, and as a result of the work of our Geological Department, we decided to develop what we now know as the Augusta and Eldorado Fields. It might be interesting to state that as a result of these geological surveys, we not only became convinced that we had gas in the Augusta and Eldorado Fields, but that we also had prospective oil fields. Please bear in mind we had previously purchased with the original acquisition of the natural gas companies several going oil companies.

History. I am going to go back just for a moment and tell you a little about the history of the development of natural gas in Kansas and Oklahoma. The first commercial natural gas fields were discovered near Ottawa, Kansas, and as that field gradually played out, the supply was extended south and west. In the vicinity of Iola, Kansas, numerous fields were discovered that supplied a large amount of gas,

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not only for domestic uses, but for the industries that located in that vicinity because of the supply of fuel. As these fields were giving out, the Hogshooter Pool, which I have previously mentioned, was brought in, and undoubtedly, this field, which is only about four miles wide and eight miles long, produced more gas per acre than any field that has ever been discovered. Mr. Diescher has told me that the amount of gas drawn from this field by five or more companies at an average price of four cents per thousand cubic feet was in excess of \$50,000,000. I also would like to show you that the development of these fields follows an almost straight line which runs parallel to the axis of the peaks of the Ozark Mountains.

Shortly after our acquisition of the properties named, the great Cushing Oil Field, which is approximately seventy miles south and west of Bartlesville, was brought in. With the development of that oil field, great quantities of gas were developed and it was decided to build a pipe line south and west from the Hogshooter Pool to the Cushing Field. Much thought was given to the building of this line, and it was pointed out by Mr. McDowell and others, that additional gas would be brought in adjacent to this pipe line, which has proved to be the case. The waste of gas in the Cushing Field was something enormous. Although this oil field was one of the most prolific ever known, it is estimated by gas experts that the wastage of gas was almost equal to the total value of the oil produced at the then low price of oil; namely, fifty to seventy five cents per barrel. This led to an agitation originated by the officials of our companies to make laws to conserve natural gas. This would be a long story in itself, but it was demonstrated that it was possible in going through natural gas sands to mud off or seal off the sands without in any way interfering with the drilling and production of oil. The reverse of this is also true; namely, if we obtain oil, you can mud off or seal off the oil and drill for gas.

Conservation laws have been enacted in Kansas and Oklahoma. Texas has not followed as yet, and at the present time enormous volumes of gas are being wasted in drilling for oil in the northern Texas fields. If we include the Kansas Natural Gas Company which

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is not a subsidiary of Cities Service Company but is an allied company under our management, we serve a population of 1,250,000 people in this District, living in some ninety-six towns and cities, where we have in excess of 200,000 consumers.

Pipe Lines. The pipe lines represented here aggregate 3,000 miles of main line, part of which is twelve, sixteen, and eighteen, and eighteen inches in diameter. The total length of this pipe would be sufficient to reach from New York to California. There are seventeen compressor stations in this system, and the aggregate horse power of all these stations is 40,000. The delivery of gas is handled by a dispatcher system—that is, we have telegraph lines following our pipe lines, and the pressure is recorded at the various delivery points throughout the twenty four hours. The chief dispatcher at Bartlesville is in constant touch with the dispatchers at the compressor stations, and in this way maintains the desired pressures.

The amount of gas that we handle through this system in one winter month is the equivalent of 220,000,000 pounds of coal, or about 3,000 carloads. In addition to supplying the various communities, considerable gas is used for fuel in our drilling operations for oil.

Several years ago, practically all of the gas passing through our lines was purchased, but at the present time, we are producing 45% of the gas from wells which we own and control. The total acreage in the Osage Nation acquired through the purchase of the majority interest in the Indian Territory Illuminating Company, amounted to more than 500,000 acres of prospective gas territory, and in addition to this we have large acreage in Blackwell and elsewhere, where present indications give us assurances of supplies for the future. Undoubtedly we have the greatest reserve gas supply in this territory that has ever been assembled by any natural gas company.

Rates. Notwithstanding the fact that the physical valuation of the properties, as previously stated, was in excess of the purchase price of these properties, we cannot say that this system has been a money maker for us up to now. The reason for this is that these companies

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have all sold their gas at too low a rate. When we purchased the Portland Pipe Line Company, they were selling their product in the cement mills for six cents per thousand. The domestic rates on the Quapaw and Wichita Systems was twenty-seven cents net on the former system and twenty-five cents net per thousand on the latter system. Mr. Doherty has spent much time in educating the public and the various public utility commissions to the fact that we must have a higher rate for gas if we are to develop additional fields and extend our lines. On the Kansas Natural Gas system the rates have been materially increased, but no action has been definitely decided upon on the other systems. The present rate for gas to the consumers on the Kansas Natural Gas system varies from sixty cents per thousand in the southern part of Kansas to a maximum of eighty cents per thousand in Kansas City. The straight charge per thousand cubic feet of gas is undoubtedly inequitable and Mr. Doherty has advocated what he now calls the three part rate, which is based on the actual cost of service. This charge consists of a customer's charge; that is, so much per month per consumer connected; a demand charge for gas, that is, an amount based upon the maximum amount of gas that is used by the consumer at any one time; and a charge for the amount of gas used. We look for the adoption of this rate in the near future, and when it is adopted, this system should make a fair return on our investment and we will be in a position to develop gas, we think, for many years to come. Regarding the rate matter, we have a booklet which explains the rate in detail and those of you who are interested may obtain a copy from your Chairman.

Financing. In concluding, it might be well to tell you how gas companies were originated financed. It was the universal custom to issue ten-year serial bonds; that is, one-tenth of the bonds were paid off each successive year. When these bonds were sold to the investors, a substantial stock bonus was usually given. The Empire Gas & Fuel issue which covered our natural gas and oil properties, was the first large issue of its kind sold to the public without a stock bonus.

I believe that the natural gas holdings, particularly the Kansas-Oklahoma Group, will in time prove a very valuable holding of the

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Cities Service Company, and will contribute their share to the dividends for Cities Service stockholders.

Another thought that I want to leave with you is that it is cheaper to transmit gaseous fuel than solid fuel—say in the form of coal—and that when the natural gas fields ultimately give out or are so far removed from our markets, it should be feasible and profitable to substitute artificial gas and transmit it through our extensive natural gas systems.

CHAPTER ELEVEN

THE BOND DEPARTMENT

By B. N. FREEMAN

Manager Bond Department, Henry L. Doherty & Co.

Mr. Chairman and Fellow members of the Doherty Organization:

Introduction. From what the Chairman has just said you may have very lively expectations in the realization of which I am fearful that you will be more or less disappointed; first, because I am not a public speaker, and next, because the subject given to me—"THE ORGANIZATION AND ACTIVITIES OF THE BOND DEPARTMENT" is no easy one to explain in a way which will convey into clear conception the system of organization and details of execution to you. It is by no means easy to convey a full and correct conception of this subject and to inform you in that way and degree which will make each hearer intelligently familiar with all working details. It is almost impossible to do this thoroughly and well, except through direct personal contact with the Department and its work. If, therefore, I do not succeed in imparting the understanding which you would desire, please realize that it will not be by reason of lack of desire on my part, but rather through inability to impart the understanding in that general way which alone is available in an address of this nature.

In introducing the lecturer Dr. Fuld said: Bonds and the Bond Department are shrouded in mystery for most of us, because we are apt to think that they are of interest only to the very rich and not to the humble among us.

Long before the Liberty Loans made investors of each one of us, the Doherty Organization strove to popularize investments by the issuance of Baby Bonds in denominations of \$500 and \$100, and even in the smaller denominations of \$50, \$10 and multiples of \$10. And the Organization has been particularly fortunate in having at the head of its Bond Department a man whose aristocracy of intellect coupled with his democracy of manner, has made it natural and easy for him to explain to the humble among us what is meant by investments. Mr. B. N. Freeman, Manager of the Bond Department, will talk to us this evening about the work of the Bond Department. Ladies and gentlemen: Mr. Freeman,

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In harmony with the growth of the Organization as a whole, the Bond Department of the House of Doherty has similarly expanded. Its activities run from securities of Cities Service Company, the Common stock, the Preferred stock, Preference shares and the Debentures, to in greater or less degree practically every security of each subsidiary of Cities Service Company.

But a few years in the past, the Department comparatively speaking, was extremely small, details of every kind and nature being handled by the Manager, assisted in total by a half dozen capable subordinate employees.

As Cities Service Company grew and the securities of the Company became better and better known, and more widely recognized in investment circles, correspondingly the scope of the Department grew.

Where formerly the handling of the business of the Department was general to all employees in its nature, as the volume of business has been more and more increased, subdivisions have naturally and necessarily been created, and additions to these sub-divisions will doubtless continue as time proceeds and operations of the Company and of the Department become still greater and more extended.

As briefly as may be, we will refer to and expound the organization of the Department as the same has been developed, and then detail the work of subdivisions.

Organization: The Executive Staff Consists of the Manager, three Assistant Managers,—Mr. McMillin, Mr. Naumburg, and Mr. Jackson,—and the sales Manager, Mr. LePorin, with divisions under their respective charge as follows:

SALES AND UNDERWRITING SYNDICATES DIVISION in charge of Mr. LePorin, assisted by Mr. Armstrong and staff.

DIVISION OF BRANCH OFFICES in charge of Mr. Naumburg.

DIVISION OF NEW OR REFUNDING ISSUES in charge of Mr. McMillin, assisted by Mr. Stubner, working in conjunction with

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the Executive Staff, in turn aided and supervised by the decisions of the Organization Finance Committee, consisting of the Firm and Department heads, which holds its meeting weekly.

DIVISION OF PUBLICITY, COMPLAINTS AND CORRESPONDENCE, in charge of Mr. Jackson.

Under the Executive Staff are other Divisions as follows:

DIVISION OF TRADING, in charge of Mr. Burrows, assisted by Mr. Stowe of the Trading Room staff, under the supervision of Mr. LePorin.

DIVISION OF OUTGOING MAIL AND PRINTED MATTER, in charge of Mr. Prill, under the supervision of Mr. Jackson.

DIVISION OF COMMISSION CLAIMS, in charge of Miss O'Hara, under the supervision of Mr. Le Porin, the Sales Manager.

DIVISION OF BONUS COMMISSION CLAIMS, in charge of Mr. Leggett.

DIVISION OF ACCOUNTING AND BOOK-KEEPING, in charge of Mr. Morrison, operating within the Banking Department, under the supervision of Mr. Johnston, Manager of that Department.

DIVISION OF CONSUMERS OWNERSHIP, in charge of Mr. Weigand, and the

DIVISION OF SCHOOL FOR SECURITIES SALESMEN, conducted by Dr. Fuld.

The foregoing comprise the major divisions of the work of the Department.

Trading Room. I will first speak of the Trading Room. The activities of the Trading Room principally are devoted to the market operations in Cities Service Common, the Bankers Shares, Preferred stock, Preference shares and the Debentures, including the Bonds and Preferred stocks of subsidiaries as buying or selling demand appears.

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The operations of the Trading Room are largely over the telephone. Its active hours open at 10 in the morning and close at 3 in the afternoon, being the same as the hours of the New York Stock Exchange.

Previous to opening, the mail orders which have accumulated over night and those which have come in over the wires, either buying or selling, are tabulated and entered, ready for execution at the opening of the market.

The Trading Room is a very busy place, very taxing and very strenuous in its demands. A total of twelve telephones are in use, the traders rapidly passing from one telephone to another as calls are made or necessary to be made in response to connections from the Street or elsewhere.

By the action of the market, the preponderance of buying or selling orders, the trader has largely to be governed, and his judgment and action have to be instantaneous.

A few days ago, having in mind this occasion, Mr. Burrows was asked to keep track of the number of telephone calls to which response was made during that day of five quickly moving hours—300 minutes—and the number was found to be 976.

It will be recognized from the number of calls mentioned how impossible it would be for **one** person to handle the work in competent manner on a reasonably busy day. The number of calls given do not include those received over the intercommunicating telephones, nor the calls over the additional phone used for long distance calls.

In giving quotations over the telephone and executing sales and purchases, Mr. Burrows has several assistants, his own direct work as well as that of one and at times two of his clerks being almost wholly at the 'phone with ear attuned to vigorous language and distracting noises, almost without cessaion.

Handling the orders received from salesmen and by telegraph and correspondence is another employe. This clerk compiles a summary each day showing the total of sales and purchases of each different stock and security. Also an additional sheet designated as the Trading Sheet, which shows the high, low, opening and closing quotations, and

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the long or short position of the principal securities of the day's operations, continuously compiled into a total for a current month. This clerk as well compiles the Daily Securities Sheet, showing the transactions in all securities in detail, and enters closing quotations for delivery to the daily newspapers for publication in their columns.

As sales and purchases are made, one rapidly following another, a ticket is executed, each stamped with the time clock, showing the exact moment at which the order, be it to buy or to sell, was received and executed. Another clerk enters the record of all these sales and purchases on the Trading Room blotter, from which he compiles a recapitulation of the sales made, showing the source through which each respective order was received. This is tabulated to a detail sheet and delivered each morning to the desk of the Department Manager. In this way the Manager is advised of the volume of sales effected by each salesman, by each branch office, and by correspondence, and is advised of the nature of each security so sold.

After finishing his other duties, this clerk concludes his day by compiling the quotations which are forwarded to Branch offices and dealers by the night mail daily.

Head assistant in the Trading Room to Mr. Burrows is Mr. Stowe, whose abilities and unfailing endeavor steadily have progressed him. Formerly, Mr. Stowe, was a stenographer in the Department. He handles the replies to all telegrams, approximately 50 to 100 daily, averaging perhaps well over 75 per day in busy season. As well, Mr. Stowe, replies to all letters passing to the Trading Room concerning the purchase or sale of securities, gives the current quotations and makes the current market on the bonds and preferred stocks of subsidiary companies which pass before the Trading Room in market way for attention.

A general assistant to Mr. Burrows and Mr. Stowe is the stenographer, Alfred Busby, another former office boy of the Bond Department, who has been making fast time in the line of progress. Mr. Busby executes the replies to telegrams and other correspondence of the Trading Room, and as well transmits the closing quotations to all branch offices and a selected list of brokers by wire each night.

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The receiving, entering, executing and consummating in every detail of each order, great and small, accurately and promptly, requires not merely speed but thoughtful concentration in high degree. Idle moments are few except on dull days.

As the issues of Cities Service Company have increased and the securities of subsidiaries have become more widely known and distributed, the volume of purchases and sales has constantly grown, until at the present time within the Trading Room the number of executed orders approximately averages in excess of 150 each day.

Division of Accounting and Bookkeeping: The executed orders pass from the Trading Room to the previously mentioned Division of Accounting and Bookkeeping, the work of the staff of which is conducted within the Banking Department, into which in this way the Bond Department directly dovetails.

This Division provides employment for approximately 30 young men, directing the passage to and from the Transfer Department of stocks and registered securities for transfer, and attending to collections and deliveries of securities sold or purchased. To enable the Accounting Department to consummate each transaction correctly in way of transfer, delivery and collection, it is necessary that every detail be accurately entered that each may be completed with the use of a minimum degree of time and labor and maximum accuracy.

Division of Refunding and New Issues: Referring to the Division of Refunding and New Issues, here falls the duty of accumulating essential facts relative thereto; also another duty, that of directing activities which keep the Department and its securities in contact with the brokers and dealers within the City, and in handling correspondence passed to Mr. McMillin's desk, together with many other details, some of almost continuous, others of occasional nature. Financing details of certain subsidiary companies are also delegated to Mr. McMillin's desk.

Division of Branch Offices: The Department now has 18 Branch offices, viz.:

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Baltimore, Md.
Boston, Mass.
Buffalo, N. Y.
Bartlesville, Okla.
Cincinnati, Ohio
Cleveland, Ohio
Detroit, Mich.
Louisville, Ky.
Mansfield, Ohio
Canton, Ohio
Philadelphia, Pa.
Pittsburgh, Pa.
St. Louis, Mo.
Toledo, Ohio
Denver, Colo.
Schenectady, N. Y.
Lancaster, Pa.
Chicago, Ill.

The Department also has a Branch Office in London in charge of Mr. Bashford and Mr. Bonnet, the volume of business at which office will doubtless become of magnitude, as the securities of Cities Service Company have already become well known and in no small degree developed throughout the United Kingdom as well as in France, Holland, and some other European countries. At the present time, as you will understand, by reason of the adverse exchange rate but little business is done between the Home Office and the London Office, the business of the London office being practically confined to purchases and sales of securities from and to local foreign investors.

The entire supervision of these branches and the direction of their administration rests with this Division in charge of Mr. Naumburg, through whom passes the volume of correspondence from and to these offices, and that with dealers and brokers in investment securities with whom the Branch offices come into contact. This includes through the Branch offices the approval of the engagement of out of town salesmen and their supervision, and as well the handling of matters of financing in connection with certain of the subsidiary companies delegated to Mr. Naumburg's desk.

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It may be mentioned here that the conduct of general foreign correspondence, arising from day to day in connection with transactions, is handled by one employe, Mr. Kenneth Baker.

Division of Publicity, Complaints and Correspondence. In the Mid-Continent oil fields, with which Cities Service Company has been pronouncedly identified, there was developed some considerable time in the past what was designated as the Trap Shooter well, or Trap Shooter pool. It is often times difficult to determine the origin of some given appellation, but I well remember that at the time of the incoming of this well and the cognomen affixed to it, it was commented in interchange of facetious conversation that the desk of Mr. Jackson should be known as that of the Trapshooter. It is equally difficult to determine how corruptions or changes in the English language from time to time occur and become interjected and fixed in the language. We are all aware, that this does take place continually and following this law of language change, the appellation at the time fixed to Mr. Jackson's desk has since been corrupted to that of "Trouble Shooter" of the Department.

Practically all complaints and errors pass to Mr. Jackson's desk to be ferreted and straightened out. As well, Mr. Jackson's desk edits the Weekly Investment Bulletin, supervises the Publicity work of the Department and in general way the Doherty Daily News, and has recently added to other troubles that of the supervision of the Doherty Monthly News. Mr. Jackson also supervises the drafting and issuance of all circular matter and the shipment thereof, the printing of circulars, and the placing of all brokers' orders for circulars and the card imprints; also the creation of all advertising matter, the placing of the advertising and the further details that enter therein. He handles correspondence and inquiries of every nature, whether for the price of stocks or bonds, or why some holder has not received his dividend, which in mail service may have gone astray, why the earnings increased or decreased, why some big oil wells are not brought in, why the stock does or does not advance, whether the market will be higher next week than during the present, or whether it will be lower; in fact this "Trouble Shooter Desk" is a general clearing house for all manner of things until the Manager of the Department has at times been impressed that when the Mail Department of the Organization knows not where else to send some particular letter, it is transmitted to the "Trouble Shooter," for there it will receive attention.

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Items of every high and low degree, often times amusing, at other times serious, of every kind and description, pass to this desk, and with it all the Trouble Shooter smiles and insists that variety is the charm of life as well as its spice. Intermixed with all this, salesmen and others involuntarily drift to this Desk to draw from the fund of general information there to be found.

Division of Sales and Underwriting Syndicates: The Division of Sales and Underwriting Syndicates, in charge of Mr. LePorin, is but partially indicative of the character and volume of work passing through the hands of Mr. LePorin, the Sales Manager.

All the mail and telegrams received from the Mailing Department are delivered to this Division, handled and distributed under rapid fire work to the different executives, trading room or other employes to whom the respective communications should properly go for best and most prompt attention. All details in connection with the handling of underwriting and commitment syndicates are here conducted, the records and lists kept, the accounts thereof supervised and approved in final rendering.

The activities of the New York-Manhattan salesmen are directed by Mr. Le Porin. Respective commissions paid on various issues are here defined and conflicting commission claims adjusted.

After the close of the operations in the trading room, transactions of import oftentimes arise, which must be passed upon without awaiting the resumption of regular trading the following day.

Such transactions are handled through the Sales Manager's office, together with the adjustment of differences or misunderstandings which arise in transactions had in the Trading Room.

The Trading Room is in constant touch with this desk, in consultation as to the market movement of securities, the movement of prices therefor, and action to be taken in specific instances of moment which constantly arise.

Much of the system and detail of forms in use in the handling of the active business of the Department has been devised and formulated at this desk.

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Indeed as we contemplate the rapid growth of business, we may feel how happily fortunate it has been that the Department has commanded the ability and diversified qualities here so ably evidenced. So well recognized are these that while directing all the local salesmen, expounding a clear knowledge of their presentations to them, and at the same time concluding with definite authority entangling conflicts over commissions and innumerable questions which arise with that peculiar personality, the salesman, Mr. LePorin stands high in the regard and esteem of the salesmen and commands a unity and force of action which has been unusually effective in results.

As I see many of the salesmen before me in the audience I will mention my assurance that every salesman present will bear out this comment.

Division of Commission Claims: From the Division of Sales arises the Division of Commission Claims, in charge of Miss O'Hara. At the present time, working in the Bond Department are some 16 salesmen, each of whom works on commission. The commissions on each security handled are clearly defined, and as transactions are effected the salesman files his claim for the commission due. These claims pass to the Commissions Claims Division, as well as the claims for commissions from branch office salesmen.

The details attending this work are very great and entail exacting scrutiny ably extended. Each Salesman has the respective clientele as developed by him, record of which is kept by the filing of a record of calls, keeping alive the clientele names which have been allocated to the respective salesman. The salesman files his report of calls each day, which is carefully tabulated and carded in the Commission Claims Division.

The salesman may call upon a prospect and not at the time effect a transaction. Later, the prospect may respond with a purchase. Watching his clientele, the salesman becomes promptly advised, and files his claim which is then checked against his record of calls, and if favorably found, the claim is approved and passed to the salesman's credit.

Approximately ten girls are constantly employed in the details of the work of this division. Every now and then some case arises

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calling for close discrimination, and in event of doubt the matter passes to the Sales Manager for decision.

Division of Out-Going-Mail: The Division of Outgoing Mail more particularly dovetails with the desk of Mr. Jackson, Mr. Prill in charge of this Division is another employe who has progressed from a former position of office boy.

Among the duties of this Division also is that of compiling the weekly offering sheet of bonds and preferred stocks for sale, which is transmitted throughout the country to a large list of dealers and brokers actively associated in the distribution of Cities Service Company securities. This Division also handles the placing of all orders for circulars, attention to the execution thereof, the imprinting of the card of each house for which a respective lot may be ordered, as well as the proof-reading of circulars and various other items calling for constant and alert attention.

Division of Bonus Commission Claims: Cities Service Company does no advertising, but in lieu compensates dealers and brokers by a small special commission upon sales of stock held by the investor for a stipulated duration of time, and a further commission for each new name, that is, new stockholder added by the respective dealer or broker to the shareholders' list. The dealers and brokers each month transmit their respective bills for the commissions earned on such sales, which are audited through the Division of Bonus Commission claims (in charge of Mr. Leggett) in conjunction with the Transfer Department.

This also is an exacting work, often times of nice discrimination in properly adjudicating claims, the same transaction not infrequently being claimed by two or more dealers through the hands of whom in the ramifications of business the transaction may have passed.

Nearly every day some broker or dealer at some distant city, and often times from within the city, makes application to become a distributor of Cities Service Company stocks. The applications of such houses are carefully considered and upon approval the applying house is placed on what is called the Bonus Commission List, a list of careful selections made from among the brokers and dealers

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throughout the country. A dealer placed upon this list is expected to be an earnest and steadfast worker in the distribution of Cities Service Company stocks.

One of the most important allotments falling to the Bond Department is the creation and constant widening of the market for the securities of the Company, particularly its Preferred and Common stocks. This is necessary that the stockholder who finds it desirable—owing to this or that condition—to dispose of shares may find a ready market for the sale, which market in broad sense is only to be had by having a constant demand in way of buying orders from other investors who wish to buy the same securities.

By widening the market and increasing the demand for the securities, the reader becomes the ability to take care of those who may find it necessary to sell.

The Dealer and Broker distributors of Cities Service Company securities, on the Bonus Commission list now aggregate several hundred. The speaker doubts if any organization has ever been blessed with a more loyal coterie of allies than have been found and developed by the House of Doherty in behalf of the distribution of Cities Service Company securities. The spirit of co-operation and of friendship, passing almost beyond the lines of mere business, is constantly recognized and felt.

The speaker can not voice too highly the regard felt by him and by his department for the band of able Houses who co-operate in this work. This does not mean that complaints are not oftentimes made but complaints made invariably receive attention and in such fair spirit that instances are rare of disaffection and of real disturbance in relations created. On the other hand even more frequently praise and appreciation are received from this or that ally.

Division of Consumers Ownership. The Division of Consumers Ownership, recently inaugurated, is devoted to the moving of Cities Service Company securities into the ownership of those who receive service from some one of the various subsidiaries; in other words, making the service consumers interested as owners in one form or another

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in the company. This Division is very new but much progress to date has been effected and a great future is anticipated for this part of the work. Mr. Weigand is in charge of this Division.

School for Securities Salesmen: The Division "School for Securities Salesmen," conducted by Dr. Fuld was also only recently inaugurated. The first class was successfully handled and graduated. From it several additions to the Bond Department have been received. The second class or term is now running, in number about twice that of the first class. Everything points to the making of this division as effective and efficient a factor in the Bond Department life as are the Cadet Schools of the Operating Department.

It is under the auspices of this Division that these Tuesday afternoon meetings, for the better information of the personnel of the Home Office, have been conducted, that a general concept of the different Departments of the Organization and of the execution of the Departmental duties might be had by the individual members of the Home Office, believing that this better realization would not only be inspiring to better work but would enable each to more intelligently perform respective duties, and to more completely realize how important is faithful and high standard work to each employe, that the machine as a whole may move more smoothly and more effectively.

Office Routine. In general charge of the Main Office of the Bond Department is the Office Manager, Mr. Alexander, to whom also falls the duty of House Salesman, the handling of incoming customers and clients desiring to buy or sell and the handling of long distance calls for the purchase or sale of securities. The Office Manager as well attends to the buying and selling of outside securities for the clients of local salesmen and for others passing into the Bond Department.

The Department also has two traveling representatives, one of them calling on the brokers and dealers throughout the Northern and Western territory, Mr. C. C. Brown; the other on those in the Southern territory, Mr. F. G. Moffat, making all the principal cities, keeping the dealers advised as to the activities of the Company and

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gathering information as to the status of business in affected lines throughout the different sections of the country.

To give some concept of the volume of detail handled, it may be said that through the Commission Claims Division, 'approximately 3,000 claims were audited during the month of October. Through the Bonus Commissions Claims Division 137 claims were audited, covering 688 transactions during the month of October.

In the distribution of one of the more recent issues handled through syndicate operations over 200,000 circulars were printed to meet the demands of brokers and dealers and transmitted in compliance with orders given.

To make mention of the volume of business, it may be said that the transactions in sales of securities handled through the Bond Department with the close of the year will have approximated 100 million dollars during 1919.

All this is due through the medium of a vast number of transactions, practically without loss and, comparatively speaking, with few errors, which speaks well for the efficiency of the Organization and the careful work of employees. Constant improvement in these respects is continually noted.

From 10,000 to 15,000 letters are handled each month.

From 1,000 to 3,000 telegrams, incoming, are handled.

A checking of the month, September 10th to October 10th, showed that outgoing telegrams were within 4 of 2,000, and that between 45,000 and 50,000 pieces of mail were issued. The postage for the month was approximately \$1,200, or nearly \$50 for each working day.

The total number of employes in the Department, including Branch Offices is at this date 175.

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It is well realized that there never has been a time nor will there be a time when improvements in the economy, efficiency and the accuracy of the Department may not be achieved. It is the aim of the Department and of each ambitious member, to bring all these features nearer and nearer to perfection. The inspiration to better work in every detail has endeavored to be extended to each employe and the sense of considerate good fellowship which will upbuild the younger members into sturdy powers in the future of the Department in time to come.

Again adverting to the Executive Staff; upon them, working together, falls the broader thought of the Department's duties and work, and as well the details of execution. The lines of the Department also run out to every other Department of the Organization, whose helpful aid is constantly and immeasurably felt. The lines of juncture between the Bond Department and the Banking Department are particularly close, and the active and willing co-operation constantly in command and effect in the Banking Department through Mr. Johnston, its Manager, and Mr. Lehrer, his Chief Assistant, and the staff of the Department, is at all times of utmost value in achieving results and effecting improvements in operation and execution of details.

A spirit of optimism based on the results to be had from hard work in the execution of carefully considered decisions as determined in the joint action of all the executives of the Organization in conjunction with the members of the firm, is at all times alive throughout the Department, and a fruitful factor in its achievements.

Hours are neither too early nor too late when the call exists for work to be done, and extra demands are always met, we are happy to say, in glad spirit.

It is in this way, and on this basis, that the Bond Department looks for a greater future and the upbuilding of a greater and deeper spirit of cooperation among its members.

The Manager. Now that you have listened to all that has been said to this point, it is in degree certain that every one in the audience is quite convinced that the detail and volume of demands upon the

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personnel of the Bond Department are extreme, and that little time exists for play in business hours. That is what is wanted, that is the condition desired, not only in the Bond Department, but in every Department of the Doherty Organization, for the Doherty Organization is made up of workers, workers with definite objects in view, workers for the good of the order, and for the good of those whom the Organization serves. But it is certainly certain that you are wondering what there is left for the Manager of the Bond Department himself to do, and are probably equally convinced that, with all his able assistants and with all the able assistance rendered to his work extending throughout the Department, there is little or nothing for the Manager to do but to enjoy himself and watch the rest of the Department labor.

The speaker happens to be the Manager, and therefore he is able to tell you that these thoughts which have been passing through your minds are exactly right, and that any one who can attain the softness of berth enjoyed by him can feel that he has reached one of the downy spots on the earth's domain.

CHAPTER TWELVE

THE NEW YORK TRACTION PROBLEM

By Hon. LEWIS NIXON,

New York State Public Service Commissioner.

Introduction. I think it is rather a hopeful sign when great companies ask those who are working for them to come to meetings such as this and endeavor to acquaint themselves with conditions in this city.

In introducing the lecturer, Dr. Fuld said: We have each of us followed the development of the small dingy one-horse car into the swift commodious trolley car of the present day, and we have seen the many competing lines of transportation in each borough unified into one great system with interborough ramifications. And this development has been so marvelous that we have regarded it like a dream; and then we have been rudely awakened from this dream when the highest elected official in this city told us recently that those of us who still prefer to ride in street cars are hopelessly old fashioned—that we must go back to the old stage-coach days and put up with the inconveniences of jitneys and motorbuses, with their slow travel, their ill-ventilated accommodations and the congestion which they add to our already overcrowded streets.

Whether we live in the Borough of Manhattan or the Borough of the Bronx, whether we live in the Borough of Brooklyn or the Borough of Queens, or even if we live in Richmond, we have suffered from a complete cessation of transportation facilities. We have been obliged to walk to work or have enjoyed traveling to work on a truck, seated on the soft side of a pine board and learning more about the construction of motor vehicles than we had ever known before.

And we might be doing this still, if it were not for the superhuman efforts of an official appointed by the Governor of the State of New York, who has striven earnestly ever since the beginning of these transit complications to adjust them in a manner that was fair to the public, fair to the investor, and fair to the operating company.

Ladies and gentlemen, Commissioner Lewis Nixon, Public Service Commissioner of the State of New York for the First District, will tell us something today about the acute transportation conditions in the City of New York. Commissioner Nixon.

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The Toledo Situation. I know something of the great company which you represent, because a few weeks ago I had occasion to go to Toledo and there I found a situation which I trust we shall not have to meet in this community. You all know about it, of course. The cars were ordered out of the city; without any expectation that the bluff would be called, the cars were taken out of the city. And I got there in the hey-day of bus operations, when you could almost walk across the principal streets on their tops and when some of the men who were operating them told me they were making money but said they hoped to God there would soon come a time when they would get the cars back.

Past Conditions. But Toledo at the present time has but little to do with the New York situation. I shall not, of course, attempt to weary you by telling anything of the past. The past conditions have been mirrored as conditions where the people were robbed, where outrageous exploitations were indulged in, where stock was watered and bonds diverted to many improper uses. And probably much of this is true. The only difficulty is that at the present time we are trying to visit the sins of the past upon the travelers of the present.

Dangers of Bankruptcy. When I first took office I looked over the situation as well as I could before speaking, and the first utterance that I gave out seemed to annoy a great many; because my idea, and expressed as strongly as I could make it, was that further bankruptcy should cease in traction companies. Sometimes a receiver has put a company through in as good condition as when it started, but those of you who have had business experience know that ordinarily it is not a very healthful application of power.

If we let all the companies go into bankruptcy, if one dollar must be spread over the work of five or six, if maintenance is omitted and the cars begin to deteriorate in efficiency and almost fall apart as some of ours are doing, the day of reckoning must come when they will have to be brought back into their original state of efficiency. If tracks are ground to pieces and never renewed,

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and all the various equipment that goes with the transportation situation is allowed to go to pieces, you know what the inevitable consequence is—it must be put back at tremendous expense by the people themselves.

Transfer System. We are faced today with that situation in the city and I am just going to tell you a few of the matters that have come under my attention in the mass of work which the Commission has to do. We found in the street railways a combination of all the railways, so that we had a universal fare and free transfers practically all over the greater city, certainly all over Manhattan.

This transfer system was in a great state of efficiency. It was an advantage to every one that traveled on the street car, and my greatest desire was to continue such conditions. As a result of the War a tremendous decrease in the purchasing power of the nickel, making it about equal to two and a half cents for everything but traction, came about, and it was found impossible to make both ends meet on a five-cent fare.

Leased Lines. The inevitable happened. Some of these lines were leased, some of them were held through the ownership of a great holding company; but just as in the case of a house which you rent and where you are unable to pay the rental, you are dispossessed, so a number of these lines dropped back to their original owners. This meant independent operation; it meant that if you passed from one to another you paid a full five-cent fare.

Now I had a dream, and I believed it possible of accomplishment and still believe it possible of accomplishment, that in the course of a year or two, certainly in two years at the outside, we should bring back these wonderful systems, this transfer system which has been the outgrowth, as I told you, of a number of years of successful application and evolution. It was a crime against the City to allow it to pass away.

Two Cent Transfers. I thought it was better for the traveling public to pay two cents to go onto another line rather than to pay

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five cents to go onto another line. I think I did not understand, of course, that if a man has to pay the two cents, he is not going to love me, particularly if I am the cause of that payment. And he forgets all about that other three cents which he saved.

But I was endeavoring in doing that to save the system so that when we did get back this great combination of roads which had given all this great advantage, even though such combination may have in its inception made a great profit to some and caused great injustice to the general public, at the same time we should have the system in working order. So in spite of great opposition I arranged for the payment of the two cents rather than lose the transfer system, and pay five cents from the various lines to others.

This was done also in Brooklyn. We expected to continue and take in for Manhattan, for example, about \$750,000 in the two cent transfer charge. Within a few days we had a strike. The settlement of that strike brought about such increases in wages that the wages on those particular lines were increased a million and a half dollars, so that we were \$750,000 worse off than when we had started, and the same occurred in Brooklyn, in the case of the strike there.

Those of you who have read the papers—or, rather, one paper—have been told that I was attempting to be above the law; that I was a menace to the community, and that all that I was doing was trying to raise fares. In one instance I did raise fares, and I want to tell you just how that came about so that you can then understand the problems as they arise.

Zone Fares. We have a system called the North Shore System, which runs from the City into Nassau County. It is cut in two in the web of its lines by the City Line. The upstate commission had already raised or put into effect a zone system on that part outside of the Greater City. The entire community met in a number of mass meetings and all asked that this line should not be discontinued. They said they did not mind paying more money; they wanted to pay more money rather than lose the line. Some of them had not yet

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paid off their indebtedness on their homes. I talked with representative citizens; they said, "Please do something that will keep this line from going out of operation." I talked with bankers who told me they had loaned money there, and many who had built their small homes and large homes along the line—some of them had not yet paid off their indebtedness, and if that line was discontinued it meant that they must call the loan and the savings possibly of a lifetime would be thrown away.

These lines were not paying interest on their bonds and were not paying interest on any stock, watered or otherwise, and never expected to pay any interest; they were not even making the actual expenses of operation; and when they wanted to buy a thousand tons of coal they had to send their trucks over with a check or they did not get it. In other words, they were in such a deplorable condition that it was absolutely necessary for something to be done or they had to stop. It was not a case of a prosperous company coming to me asking for more money that they might put it in their pockets in the way of dividends, but a bankrupt company in the hands of receivers, praying for an opportunity to serve the public. And I took the responsibility of putting into effect a zone fare somewhat similar to the one that was put in by the upstate commission.

I have been condemned in unmeasured terms for doing this. I think I was right, and while I have the greatest respect, of course, for the courts, and would obey them and bow to any decision that they made, I do say that those who blamed me and those who were so prepared and so anxious to rush into criticism after every act of a man who is trying to do his best, at least should go to the courts and like men fight it out instead of talking about it. I challenged them to bring the matter to a trial, and as yet it has not been brought, but every time we are ready and the case comes up, the other side asks for an adjournment.

Restrained by City. There was another instance of the same sort, the Manhattan and Queens Company. It was just about in the same

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condition. It said it would have to stop unless we raised the fare. After the criticism which I had received from the City Government, I said this particular baby is going to be put on your doorstep; I shall take no steps whatever other than to learn the exact conditions of the mater. And just as soon as I have the facts I will turn them over to you and let you do it in your own way, and see how much better you do it than I have, and I hoped truly that they would find a better way. They did not rise to the responsibility. I called a hearing, which was my duty, to get the real facts under oath as to all this. I did not know what I was going to find. I did not know whether I was going to find gross inefficiency or gross wastefulness, but I called the meeting in order to find the real facts.

The City Government went into court and asked for a writ of prohibition to keep me from finding the facts. They said they knew what I was going to find, and after I had found it what I was going to do. And so they hid behind the robes of justice in order to escape the responsibility, because I had said I was going to let them adjust that particular case, and that is the way it rests at the present time.

Disintegration. The surface lines are in deplorable condition. They are gradually dropping away from the holding company. Many of them have gone out of business altogether, and I fear that there will be constant disintegration of the same kind. Thousands—I think about 27,000—cars were towed back last year to the barns. When situations like that, due to deferred payments, due to the fact that they have not the actual money to keep up the cars in the way that they should be, when we see the tracks going to pieces, when we see the destruction of the physical properties, you can realize that the time is coming when a great deal of this property must be rebuilt in the interests of justice, and when that time comes it simply means added burdens on the taxpayers of the City, all of which could be avoided by intelligent foresight.

Rapid Transit Lines. To refer, outside of the surface lines, to the rapid transit lines. When these lines are completed we shall have

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about 636 miles of track, which is equal to London, Paris and Chicago all put together. We have the greatest transportation system in the world. We have the only express rapid transit system in the world. It is run in the highest state of efficiency. The men, such as Mr. Hedley, who are running that, have no peers in urban transportation, and whenever a good man has shown his head anywhere throughout this country, they bring him here to New York and put him into the service of the people and keep him there.

We are carrying vast numbers of people on our subways and our elevated, crowding them like cattle, it is true, but we are carrying them with safety. And you rarely hear of a death from their operation—remarkably few accidents. What we need, of course, is rapid, safe and dependable transportation; that is the lifeblood of this community and it must be provided at any expense.

We had a short rapid transit tunnel built under the old Manhattan government when we were a city, only running through Manhattan. Later this was extended into the Bronx, and then across the river to Borough Hall in Brooklyn, under what they call Contract No. 2, Contract No. 1 being the previous one.

Conditions got so bad and the necessity for the development of the City became so great that the Legislature through successive bills provided for the City building the subways itself, if it wished to, or equipping them if it wished to—put the City government in a position where it could get extensions. It was thought unwise to start a competitive system as compared with what we already had laid down as the foundation. Money was hard to get and a hard bargain was driven by those who supplied it. You must understand they did not have to supply it. I am holding no brief for them; I am telling the exact conditions which must have been in the minds of those who signed those contracts, because those contracts were very hard so far as their connection with the City was concerned. In other words, the man who had the money drove as hard a bargain

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as he could. So hard was it, that the City, in taking this money, subordinated its own bonds and put them at the tail of the procession, so that the 230 millions of bonds that we expected to spend upon this work would have their interest paid after everything was paid on the investment. Whether the investment was large or small is a question for investigation. Anyway, these contracts were made and, using the old and first foundation subways as a basis, we find an extension into every borough except that of Richmond, and that I suppose will come in the fullness of time.

Five Cent Fare. They did not establish a zone fare, although you would think, when you first begin to consider the matter, that a zone fare is the most logical of all fares. If you buy dress goods for the ladies you buy it by the yard and not by the piece, and so a man who travels four times as far would in a measure be expected to pay at least something more than the man who traveled on the short fare.

But we have predicated so many real estate developments, so much has been done in opening the City, so much was based on the fact that these contracts secured for all travelers a universal five cent fare and universal free transfers, that it would be practically impossible to have other than one fare in the city, and I do not believe that we are in a position at present surely to advocate a zone fare. At any rate written into these contracts was a requirement that passengers should be carried for five cents. Under the conditions at that time probably the five cent fare represented a tremendous profit; certainly those who signed these contracts thought it represented tremendous profits. Those who supplied the money thought so, because they put their money in it. The City must have thought so, because it put its own bonds down at the bottom so that they would be the last ones to receive anything.

I imagine within the experience of all of you, you have found that five cents does not buy quite as much as it did in the past, and it won't even buy quite as much transportation. Yet we are giving

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more transportation and increasing the amount of service we are giving every day, although the present systems are vastly overtaxed and the crowding is something terrible.

Readjustment of Contract. The Mayor says: "You have made a contract to carry people for five cents; the City is perfectly satisfied and if you want to do anything else come and tell us." However, we have started a dissolution on that account. There is not enough money to pay for the service. That means the slighting of service. It means, as I say, if you spread one dollar to do the work of three, you are going to face the deferred maintenance wherever you can find an excuse to do it; and in the long run we risk inferior service, the one thing that the people of this city cannot stand.

Therefore there have been efforts to bring about a readjustment of these contracts. I am going to confine myself particularly to this today so that you will get in your mind just what is wanted in this regard and what might probably be done, in spite of opposition, in the course of the next few months; because if there is one thing that the people of New York must safeguard, it is their transportation, in all its integrity and in all its efficiency. There have been bitter denunciations of this contract and in particular of these two contracts that I tell you about. These contracts in general said that all the money that was collected should be used, naturally, for certain purposes. First, the cost of operation, and that is simple, you understand that perfectly. Second, the taxes and the various charges of the city. Third, interest on investment. It was assumed that if a man put a dollar into an enterprise the city as well as the individual must be willing to pay him just interest, provided he has not padded that particular investment. After paying all that, we arrived at the City's bonds. So they got the last payment of interest.

Single Operating Company. My idea of the solution was first to get a general great operating company because I think, and I will endeavor to explain to you, that some day we shall have to have municipal control as well as ownership provided for this great system

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of the city. We are not ready for that now and may not be in the lifetime of some of us here. At the same time I did want one great operating company. I wanted to bring this about by means of a flexible fare.

Flexible Fare. Now, the flexible fare in its best adaptation is used in Cleveland and also in Cincinnati, Montreal and in many other intelligently governed cities. The flexible fare is arranged by fixing the fares for operation to cover first the cost of operation, taxes and city charges, then interest on the honest investment and all the various expenses that go with maintenance and underlying expenses of a transportation company. In Cleveland they have a surplus fund with an upward limit of seven hundred thousand and a lower limit of three hundred and fifty thousand. When you begin to charge a certain fare, say seven cents, and this fund into which receipts are paid mounts upwards and strikes its upper limit of seven hundred thousand, automatically the fare goes down to six and a half. If you are charging five cents and the fund drops down through the drafts upon it for operation, or through other causes, to the lower limit, automatically you increase this a fraction of a cent, and that operates for so many months. You can see that the drift of the operation may raise it another half cent or lower it another half cent.

When I asked to have this applied in some measure in New York City there was violent opposition. They said, "It is perfectly ridiculous, it is all right for you to talk about Cleveland, but these rapacious companies here, these people that are trying to run these companies and corporations would not be satisfied, we would never get the price down and you will never see it go down again in Cleveland." And yet, gentlemen, while less than a year ago the fare was seven cents in Cleveland, a few days ago they began to sell six tickets for a quarter.

I question the sincerity of anyone who condemns these contracts as being one-sided, who says that they are robbing the people,

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and who refuses to amend them now that the opportunity offers. We should, for instance, refund fifty-seven millions of seven and a half per cent. notes over in Brooklyn in the interest of the people. There are many opportunities to effect such scaling down and to secure valuable concessions in the people's interest.

Now, I have no doubt we could refund those at four and a half per cent., and every man who bought those would be glad to refund them at four and a half when assured of this return. But when you are paying exactly for what is supplied, when you know you are paying the cost of operation, if you want an excessive cost of operation you must be willing to pay it. This city will have everything scaled down, upon definite returns on securities not speculative but as an investment for returns, and you will find you are able to take the traction situation entirely out of politics, which is the one thing that people who oppose a common sense readjustment of this situation seem to oppose. You would then pay the man who has put his honest dollar into this general project an honest return upon his money.

If we are going to bring about a condition where transit securities and transit properties are insecure, how long will it be before we shall face the same situation in our farm and our factories and even in our homes? A city like this that must borrow money—and before I leave this, I want to tell you another thing that will be done by this cost of service plan. We would pay the interest on the City bonds. We shall fix that interest so that the city transit bond would be automatically put out of the debt limit, and I ask any of you what you think can be done by this city now, absolutely at the top limit of its spending, if it could have a free gift practically of 230 millions of dollars more to pay for schools, streets, docks, etc.

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And what if it does not? By applying a cost of operation fare we can do away forever with sins of the past that are complained of at the present time. Extraordinary payments for the flotation of securities, grabs probably in bond issues—all of these have been brought out in the Thompson Inquiry and are now being brought out fresh again for the people of the city to read. But they happened because there was a fixed fare. We are improving wonderfully. Conditions are getting better daily. The normal increase in this city of passengers carried has been about eighty millions here. Last year we increased one hundred four millions. As we bring in the various disconnected links of this great system, which has been so well planned, when the people adopt a particular course of travel through having their occupation fixed and their homes fixed, you will find a tremendous improvement.

Hence it is only a year or two from now when these companies, if they can get through the present stress, will be making those same exorbitant profits and putting them into their own pockets while a flexible fare would save such payments for the people.

Cost of Service Plan. Now, what I have asked that we do, and what I have been condemned in the roundest terms for, is to let us try a cost of service plan, in the broad daylight, so that everyone can understand it, so that the sums that would fix the fares could be given to a child as problems in the public school, even a child of fifteen, could determine them and there would be a general understanding of the fare adjustment.

Valuation of Property. I have been criticised, too, for saying that I wanted to see an unquestioned value made of the property. By unquestioned I meant not a star chamber investigation on one side, which would cut and slash real values, nor a wide open booming of values and boosting of prices on the other. Let the City take one man eminent in his profession as appraiser, let the companies take another, and let them choose a third. The general public only wants

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the facts and they cannot be obtained if only one side is representd. The City Government has not taken kindly to the suggestion of a flexible fare. They are not willing to discuss changes in contracts where they have the whip hand. They say the people are paying five cents, and we are going to keep them paying five cents. But the city is paying ten million dollars a year interest on these particular bonds, which could automatically be released from the debt limit in the simplest possible way to the benefit of the entire people, and under the present conditions we are going to continue to pay them for the next forty-seven years, a debt obligation in the form of taxation on this community of 470 milions of dollars; and the people are perfectly satisfied to pay it, because somebody says it does not amount to anything. And yet in the particular lines on which the people travel it amounts to nearly a cent. So that the people who live in the city pay the taxes and are really paying about six cents, while those who come from the outside, the floating population are getting along at five cents.

I want to impress upon you as the thought that you should take away today, that if there were undue profits made through the exercise of the five-cent fare, that we should put in a cost of service plan, so that when the improvement in conditions comes we shall be able to profit by that for the entire community, rather than put it in the pocket of the holding company.

This is a common-sense proposition, and it seems that it should work. However, that is my own position, and I am perfectly willing and satisfied that as far as my own conscience is concerned I will be proven in the right eventually.

Municipal Operation. I have said that we would have to come in the course of time to municipal ownership and operation. We already have municipal ownership. Operation can only come when we appreciate the expert in all lines of work. When a politician who recommends a man for section boss or to take control of one of these

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lines can say with pride, "I have within my party an expert electrician" or some man qualified to do good work in a physical way, rather than the fact that he can carry some little corner of the ward—when we can draw upon the expert in various lines, we shall then be able to turn over this great operation to the City.

It means the immediate addition practically, if we did that, of thirty-five thousand men, thirty-five thousand new officeholders, thirty-five thousand men who can be controlled and voted the right way. I do not know how any of you consider it, but I certainly think we are not prepared for it as yet.

Strikes. But there is a reason why it will have to come. I faced two great strikes on this situation. They were very serious; they bade fair to demoralize our system and to hurt the people immeasurably. Their continuance would have meant the expenditure of vast sums by the city in restoring the plants and conditions as they were before. We managed to get these strikes stopped and the men went back to work. There must be some other court of resort for the man who feels that he has some injustice to complain of rather than that of the strike, and that must be worked out and it can be worked out, probably through some form of municipal ownership.

Besides that, with the proper recognition of the fact that the service in these great transportation companies is a quasi-public service, and that the men might be controlled, might be put in different classes; that there should be penalties for bad work; and for splendid or good work or for loyalty to the situation there should be some reward; also that there should be a fine or a step down for poorer work or for leaving a job; and it ought to be outside of the control of those who fix rates; and the laws should be so explicit that these operations could be automatic. For I should hate to face the situation where it was entirely in the hands of a man running, for

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instance, for the mayoralty. It would be a question of who could bid the highest for a man running for office as to who would get the most votes.

I do not think those are imminent problems. I do think, however, that the time has come when public opinion, acting in a mass, should say that this situation is so ominous and the condition we face may prove to be so hurtful, those in responsibility should not shrink from sitting down and talking it over round the table.

Lack of Cooperation. The first thing I did when I saw the absolute need of this, when I saw bankruptcy was impending, and occurring, when I saw receiverships created, day after day, was to write to the Mayor of the City and ask him if he would not call a conference where we could talk it over. I got no answer to that. Then more troubles came, and finally I called a conference myself, and I wrote letters to every one of the Board of Estimate and to all the representatives of all the companies involved in the city. I got no answer to those letters. There was an interview, I think, in the papers with the Mayor, and the Comptroller did write me a letter, for which he was called up on contempt proceedings before the court. I have been Christian-like and more than patient in all I have done in this matter; I have prayed for some adjustment through discussion. All I wanted was to put the facts down and talk them over. I have even turned the other cheek, and it has been smitten, and I am almost at an end of what I can do; because today the courts are tightening around me the general limitations of what a man can do in this particular district.

I have never attempted to do anything that the law prevented. I have not said that the legislature can pass a law abrogating the contracts; so the contracts stand today saying that the five-cent fare shall be continued, in spite of the fact that the five-cent fare as it now exists may mean the destruction of our transportation

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system. And I have not said that I could get some bill through the Legislature; I have not said that I could raise fares: but if I had the power I would bring about a flexible fare, which would adjust this entire situation, in the general interests not only of every one of our traveling public, but in the general interests of every man who owns a dollar of property in this city, or who is interested in its institutions and its general progress.

CHAPTER THIRTEEN

EMPLOYEES' QUESTION BOX

Conducted by Dr. LEONHARD FELIX FULD

Educational Director, Bond Department, Henry L. Doherty & Co.

Question No. 1

If an employee, whose advancement in the Doherty Organization seems slow, believes that the fault is his own, how can he find out the cause and correct it? If he believes the fault is not his own, what should he do?

By Mr. McMillin, Assistant Manager, Bond Department:—That is a perfectly human question, and the question of what to do necessarily depends upon what the man finds to be the fault.

Surely we all ask this question of ourselves very often. The only practical thing I can think of is to say the way to find out what the fault is, starting with the assumption that perhaps it is one's own fault, is first to make sure that you are doing the thing yourself that you think you are, that you are the genius and not the shadow. It

In opening the Question Box Dr. Fuld said: We all recall the time in our own personal history when we knew less than we know now and when we thought that we knew more. It is said that the first indication of wisdom is a consciousness of one's own limitations. Judged by this standard, the members of the Doherty Organization seem to be wise, because although the number of questions submitted in response to the invitation extended to the members of the Organization was not as large as we had hoped it would be, the questions have made up in their quality what they have lacked in quantity.

We shall proceed to the answering of the questions. I shall ask those upon whom I call for answers to limit themselves, if they will please; to five minutes:

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is mighty easy to think that the thing in our individual case is something that we alone have created. Frequently, however, we are a tool in someone else's hand, and it is worth while to stop, lay a yardstick down upon our labors and see whether we are really doing the thing.

A practical way of figuring out whether the fault would be ours is to look over some of the work we did a year ago. I find that an illuminating and helpful and altogether discouraging method of examining my own work. Look over some of the stuff you did a year ago and blush. It would be stimulating and healthful.

Frankly, of course, we want to be sure that the fault is not in our thinking or in our adaptability. It is perfectly easy to be a mere machine, but in the Doherty Organization we certainly hope that everyone aspires to be one of the thinkers, and at the same time our business has changed within the life of some of us who are here from one that was purely a public utility to one that is more and more oil, so we must certainly have adaptability.

So much for the examination of whether the fault is our own. If we conclude that it is not our own, then our questioner says, "What shall we do?" The answer to that is very brief. First of all I should say by all means let us attend the School for Securities Salesmen, because by studying how to sell securities we can learn two things that we ought to know. The first one and most important, "What are securities and how can we invest our own money?" And, second, we may be lucky enough to learn a new profession and a new line of business. I think that the fact that the School for Salesman is under way should be a ray of sunshine to everybody if he thinks that he is in a wrong niche and that the fault is not his own. The other alternative is to seek an assignment in some other department, and usually every one in the office will listen kindly to a plea along that line.

Question No. 2

What factors enter into the problem of whether a given public utility property is likely to be a desirable subsidiary of Cities Service Company?

By Mr. Bump, Chief Engineer:—That is a very simple one. The question is, "Can it make money?" Aside from the fact of whether it is at the time making money, how much more money can it make and has it a firm enough foundation in the community to justify the belief that it will continue to make money? Is its franchise and financial situation one that gives ground for our believing that it can maintain a good showing? Does it stand well with the public which it serves? Those are the fundamental questions.

Question No. 3

Why is overhead not charged to construction jobs in the same manner as labor and material, since prices to consumers are frequently based on these costs?

By Mr. Jones, Auditor:—Technically, construction costs should represent the actual money cost. When a new plant is under construction all expenses incident thereto, such as cost of organization, franchises, land, structures, equipment, engineering supervision, law, expenditures, injuries, taxes, interest, proportion of discount and expense of bonds issued in connection with construction, etc., are properly considered as capital expenditures.

This is on the theory that until the plant is actually in operation and producing income, all expenditures made subsequent thereto are necessary for a complete unit.

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After completion of the plant, it is necessary to create an operating organization from the general manager down through the various operating units. Assuming this same force was employed prior to completion of plant, their recompense would be charged to construction, but immediately upon the plant being turned over to the operating force their recompense becomes an operating expense. From time to time, after completion of the plant, additional construction, due to increased demands, are necessary. Technically, the same procedure could be followed in capitalizing overhead expense on this new construction work, as is done in the erection of the first unit.

In practice, however, companies desiring to be conservative have made it a rule not to capitalize expenditures covering salaries, which generally are classed among operating overhead such as managerial, superintendence, clerical, etc., for the reason that these expenditures would go on whether any construction was under way or not. Assuming a company borrowed money for extensions or improvements to its plant, such as new turbine, new lines, mains, etc., if the funds so borrowed were set aside as capital liabilities, and used only for the purpose of construction, such interest could be capitalized.

In our Organization, as far as possible, the companies finance their construction out of the earnings of the property, borrowing this money from the stockholders instead of paying the earnings out in dividends, the surplus afterwards being reimbursed by sales of securities at such times as there is a favorable bond market.

You would be justified in capitalizing a fair rate of interest on all money charged to construction during any period, assuming that at all times plant account is kept in balance by taking away from it all costs of obsolete or abandoned equipment. In our properties we have endeavored to follow the conservative method of not capitalizing all charges to which, theoretically, we are entitled, where such charges

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might be open to criticism.

As an example of the care necessary in capitalizing overhead—assume new construction equipment was ordered at a cost of \$100,000 and of such nature that same could be installed within a week; further assume that we immediately charged interest at the rate of 6% to this construction job, this amount naturally being offset by increase in earnings.

Also assume we have purchased this equipment for \$100,000, upon terms of 30 to 90 days, without interest, the manufacturer, in determining the price to us, having already included interest loss for carrying us for 30 to 90 days.

On the above assumption we would be taking into earnings and charging investment, interest supposedly on an indebtedness that in reality would be a false charge as we did not pay interest on indebtedness created for purchase of this unit.

This example is pointed out to show how careful one would have to be in capitalizing interest, taxes and general overhead expense, although, as stated above, theoretically such charges are permissible.

In relation to rates, very seldom is it found that the courts or commissioners accept book values as a basis on which to determine rates, but base their conclusions upon a revaluation of the property at a unit cost, based upon market conditions as of a certain date; and in such valuation make allowance for all overhead expenditures, which common usage shows to be conservative.

Question No. 4

Why is Cities Service Company as a public utility holding company not subject to attack by the Attorney General for dissolution under the Anti-Trust-Act?

By Mr. Scott, General Manager:—The last time I was here I served as a gas expert. Your chairman has now put up to me a legal

question. I could not answer it so I put it up to one of the members of our legal firm, Mr. Robinson. I will read his answer, but before that I want to say that in my opinion, as a layman, about the only monopoly in this country is that which has been created by the United States Government, something in the way of the manufacture of a patent, and I think we will all come to see it that way.

Here is Mr. Robinson's answer. "The activities of the subsidiaries of Cities Service Company are in various lines. Where subsidiaries are transacting business in lines not already subject to Government control they do not have a monopoly or tend to create a monopoly. For instance, in the refining of oil there are many companies whose production of refined oil exceeds that of the subsidiaries of Cities Service Company, and such subsidiaries of Cities Service Company cannot be said to control any market for refined oil. In a case where a subsidiary of Cities Service Company has a monopoly, it enjoys its monopoly by virtue of public grant and is the subject of public regulation. For instance, all public utilities are operated under grants and franchises from governmental authorities and are subject to regulation by governmental authorities. As to these, the monopoly is granted directly by the state, which fact takes the same out of the Anti-Trust Act."

Question No. 5

May a Doherty employe who is not an engineering graduate enter the Doherty Training Schools on the same basis as an engineering graduate?

By Mr. Griswold, Chief Technologist:—When the Doherty Training Schools were first started in Denver, there was a very general demand that the regular employes be permitted to enjoy the course also, and that was done. There is no hard and fast rule against it, but the experience at that time was that the regular employes whom

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we succeeded in getting in, at that time anyway, as a class did not seem to be able to get much out of it.

The course was designed particularly for a man with a certain training to start with; not necessarily knowledge, but a training in studying, and some of the boys had a lot of trouble.

On the other hand, if anybody in the properties where any of these schools are maintained wishes to take some of the work that we give to these Junior Engineers, he is welcome to do it. It would hardly be fair, however, to give him all of the advantages and take none of the disadvantages that these other boys have to put up with, and if he wants to take all the course that they take, the privilege of being shifted around from department to department, as well as the lectures that we give them, he ought to be perfectly willing to take the same compensation as those boys have to take when they take that course.

He may feel that he has already had a lot of experience in the company, which would be worth something and should have some consideration, and it should; but in order to play fair and square with everybody we would suggest that he forget that while he is taking the course, because if it is really worth anything to him and to the company, it surely will show up as soon as he gets back to his regular work again.

Question No. 6

Can I change from a present clerical position to an accounting position where I can advance in the Doherty Organization, and how can I accomplish this result?

By Mr. Jones, Auditor:—This question is very similar to that which Mr. McMillin answered.

In my opinion there is no member, no matter what position he may occupy in the Doherty Organization, that cannot advance. If

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there is such an employe, it is due to one of two causes. Either that he is not sufficiently interested in his work to acquire sufficient knowledge for advancement, or it is due to the fact that his immediate head or superior is not sufficiently interested in that man's advancement to see that he is properly trained to succeed him

This subject is one I feel very strongly on. From the time that I first started with the Doherty Organization I have heard Mr. Doherty and Mr. Frueauff preach the gospel which I know they have carried out, to train the other fellow.

If each head of department would take the man who is thinking along lines similiar to the one who asks this question, and find out what he is best equipped for, then give him every assistance possible to make good, he would quickly satisfy his ambitions for advancement and I am sure we would soon build up a better Organization than that which we now have. I would suggest to those who have this problem in mind that they go to the head of their department and state their case. I feel sure the department head will willingly give permission to interview the members of the auditing department who will endeavor to guide each one along the proper line of accounting.

We want men and the only way we are going to get the best men is to train them. There never has been an opportunity for advancement in the Organization as there is at the present time, and there is no one in the Organization who cannot obtain advancement if he possesses the qualifications for hard constructive work.

Question No. 7

What chance for advancement in the Doherty Organization has a non-college man in competition with the men who are graduates of the Doherty Training Schools?

Mr. Bump, Chief Engineer:—That has been a question that has gone through the Organization back and forth ever since we first started

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the training schools, and the results of a period of ten or twelve years time clearly indicate that the man who has not had the engineering training, the engineering education, has the same chance as the other man. He may not be able to follow his opportunities as fast at the start, on account of the advantage which the engineering education has given the other man, but in so far as the Organization is concerned, he has absolutely the same chance to grow and develop as rapidly as he can develop his own talent.

Now take one class, for instance. I might cite the example, for instance, of the men who have become general managers in the last six or seven years. I was checking that list through today. There are, I think eight who have been cadet engineers. Out of those eight who have been cadet engineers, six had previously been secretaries of properties. There are four who became managers through the secretaryships, without any engineering training. There are seven who became managers through their development in the new business department .

All of these seven started at the bottom in the new business department as line salesmen in that department, and worked their way through to the position of new business managers and afterwards to general managers. Taking the number of men available for appointment as managers of properties, which is a typical example of a goal to be sought in the Organization, I would say that the results have proven that the chances are absolutely even for all men who get out and deliver the goods.

The cadet engineering training has failed to bring promotion to many men, because they did not apply themselves. On the other hand there are a great many of these men who started in comparatively small and unknown positions who are now going right to the top of the Organization because they did apply themselves. I say every

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man's chance in the Organization is equal. It is a question of how earnestly he applies his ability and how he applies himself to his task, and there is no disposition and no desire on the part of any one to select any one class of men for advancement. The cadet engineers, I am sure, do not ask that they be given any preference in the matter. They have the advantage through their education. All they ask is a fair chance to apply the knowledge which they have spent four years of their time as well as many dollars of their money to acquire, and a chance to grow as rapidly as their training warrants, but that does not handicap any other person in the Organization.

There is a free chance for all, and that, I think, has been and always will be the motto of the Organization.

Question No. 8

Is Cities Service Company producing any oil in the new Louisiana fields?

By Mr. Scott, General Manager:—Here we go as an oil expert. We have'nt any developments in Louisiana. Cities Service Company owns about a hundred thousand acres in the State of Louisiana. In the field that you have heard most mentioned, Bull Bayou, Cities Service Company owns about a thousand acres. We are just starting one well there. The Bull Bayou is a very limited field and Mr. McDowell—you notice I always quote, Mr. Chairman,—Mr. McDowell and Mr. W. A. Williams think the field is rather small to date.

Question No. 9

What is meant by shooting an oil well, and what methods are employed in such shooting?

By Mr. Scott, General Manager:—They simply put down a shot of nitroglycerine in a well and break up the rock and sand, in order to give the oil a chance to accumulate.

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Question No. 10

To what extent does our Organization encourage savings on the part of employees?

By Mr. Bump, Chief Engineer:—I do not know that I feel entirely competent to answer that question, but really I do not know of any organization where more scientific thought has been given to the general subject of savings through investment plans than in our Organization. While I think it has been the experience of practically every large corporation in the last three or four years, all of these plans have been more or less in suspense, on account of the war conditions. I am sure that no man has given more time and study to the effort to follow up proper plans leading to savings than Mr. Doherty. He has spent a great deal of his time on various plans, and as soon as conditions are right I am sure that he will again do some more constructive work along that line. A number of years ago the National Electric Lamp Association came to Mr. Doherty and asked him for a plan under which their employees could build up a co-operative savings plan. As a result of that, the so-called Nela Alpha Investings Companies were formed under which the employees were allowed to buy stock on a monthly payment basis, and this money was invested for them by the officers of the company in various securities, and the securities changed from time to time at what seemed to be the best market advantage to the holders, until every one of those companies, I feel, has built up a very large surplus in proportion to the original amount paid in.

Certainly not only our Organization but every organization at this time particularly, should encourage savings. There has been the tendency for the whole world to run wild during the last three or four years, and practically the whole country is on a basis which I noticed in the funny column the other day when Uncle Joe

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Prouty said, "I never thought the time would come when everybody would be living on luxuries." There has been too much of that tendency all over the country, and one thing we must stop before we get back to a normal condition is the extravagant spending and the extravagant method of living which prevails and which is regarded as standard to-day.

For instance, the statement was made recently at Washington before one of the Government investigating committees to the effect that an automobile was an absolute necessity to a railroad fireman. Matters of that kind are matters that must be adjusted before this country can get back to a fundamentally sound basis, and the person who saves today has greater opportunities than ever before to get something real out of his savings.

CHAPTER FOURTEEN

ADVANCEMENT IN THE ORGANIZATION

By MILAN R. BUMP,

Chief Engineer, Henry L. Doherty & Co.

Introduction. It is rather unusual for a road show to play more than a one-night stand in any hall, and I feel very much complimented that the management has seen fit to give us a return engagement here.

When I talked to you the other time about the Doherty Spirit, I was quite unprepared to make a connected talk; and as you know, I had very little notice of that talk. I had tried to be a little bit better prepared today, but things have been moving so fast that I am not as well prepared today as I had hoped to be.

The subject that was assigned is, "Advancement in the Doherty Organization". That is a pretty big subject to attempt to cover in a comprehensive way in one short afternoon. There are so many

In introducing the lecturer, Dr. Fuld said: A few months ago our chief engineer, Mr. Bump, described to us the Doherty Spirit—the great lubricating agent of the Doherty Organization which keeps the wheels moving. We listened to his address, we have read it in print, we have discussed it; and as a result of that address, some of us have become healthily discontented. We have been asking questions as to how the Doherty Spirit will help us to advance in the Organization, and Mr. Bump has come this afternoon to help us answer these questions. Ladies and Gentlemen, Milan R. Bump.

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ways to advance, there are so many opportunities to advance, and there are so many chances for those who want to advance, that it is almost impossible to describe the situation with any degree of completeness within the space of thirty or forty minutes.

The General Staff. There are a few features, though, that I want to put before you, in this office, particularly, because I think it may give you a little different view point of the Organization. You know that every army has a general staff. The general staff revolves about the headquarters of the army, about the general-in-chief; but that general staff and the headquarters companies that are detailed to guard the general staff are of very little use unless there are the battalions and the regiments, and the artilleries, and all the other arms that go to make up a complete army. The staff of itself could not fight a battle, it couldn't do much of anything; it is only, really, you might say, the balance spring of the watch, and the rest of the watch is outside of the staff and outside of the spring itself.

Now, that is exactly the position of this New York office with reference to our Organization. We are here only because there is an outside organization. If there weren't these properties, if there weren't these earnings coming in from the fields, if there weren't these oil wells, gas fields and all of those things, there would be no need for this staff here at all. We are here because they are there, and the more they grow out there the more the opportunity is to grow here.

When we first started we had three or four or five little properties on the outside,—comparatively little, talking about what we have today—and we had a staff here that corresponded. We had then a total of six or seven on the New York office payroll. As the outside grew; it became necessary for the staff to grow in order to take care of the records that were coming in, and to keep in touch with it and to systematize the reports in such a way that the executives, the general-in-chief, would know what was going on in these outside properties.

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Now, I think that describes in a general way what the real function of the New York office is, in so far as a majority of the members of the office are concerned. It also, of course, has its financial function which arises from the needs of the outside properties and which is, you might say, creative in the sense that it has to go and find the money before the outside properties can grow. But in the main the New York office deals with what goes on in the properties.

That being the case, what we do here principally is to get a picture, a picture of what the world is doing around us. We are, you might say, really an unimportant part of the whole picture, in so far as our organization is concerned, in that we do not do the creating. The creating, the necessity for our existence here, comes from these outside properties.

Opportunities in the Field. One of the things this should bring to the minds of the younger employees particularly—and I think no doubt it does—is this: That if there are 400 here and 18,000 outside of this office, that if we are all part of one Organization, there must be lots of chances for the young fellow in New York, the youngster here, starting as the office boy perhaps, when he reaches a certain point there must be chances for him to go out into the properties, go out on the firing line and gain his practical experience in the world in that way. And I want to tell you that there are all kinds of such chances, the whole Organization is full of them; and what we want to do is to stimulate that feeling here in this office among the younger members of the Organization.

One of our best sign experts in Toledo today, one of our best illumination experts, is a boy who was answering calls here in 1908 and 1909. Another one of the boys, who was a young clerk, is one of the responsible cashiers in Bartlesville, and so on. The ones that have seen their call, have been ambitious to get out there and out to the firing line, are making good; and I don't believe you could get them back in here, in any possible way, unless it was through some executive promotion. After they got there on the firing line, they liked it.

Promotion Policy. Now, our Organization is, we think, distinct from most organizations in one primary respect, and that is this: That we always try to build from within the Organization. If we buy a new property, it is not our thought to go outside and hire a man to run it. It is not our thought to go and get a new staff to put on that property. Our first thought is, "Whom have we in our present properties that deserves the promotion and deserves the chance to go on to that property?" Build from within. And all the way along you will find that rule is adhered to, that we never do go outside, unless it is absolutely necessary, and we hope, we want to be in the position where we never will have to go outside to get any man for a responsible or executive position.

Love of Work. How, as to whether we can make good that motto, and whether we can stick to that plan or not, depends as much upon the people in this room as upon anyone else. It depends upon how you grow and how you develop and how you come along, as to whether we can keep it growing from within. We don't know how fast we are going to continue to grow or how far. We do know that there is infinite growth ahead of us, that what we are today, while it may look large to some, is small in comparison to what we can be and what we will be if we hit the ball and go at the game right. For, after all, this work is all a game, it is all a play. The man who doesn't love his work and doesn't get play and enjoyment out of it, simply is going to make himself sooner or later, either in his present job or in some other job, a drone; he is not going to get far.

If your work is work to you and you don't see beyond that work and see the pleasure in work and the pleasure in service, look out; you are in danger of standing in your present station for a long, long time.

Advancement of Henry L. Doherty. Now, advancement in the Organization might be cited in a great many notable cases. I haven't the time to go over them and I doubt the propriety of calling all of the different cases that I mention by name; but let me just cite a

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few, plain, blunt conditions to you, to show you that your chance, everyone of you, is just as big and just as good as that of any man who has ever been in the Organization. Where was the gold spoon that gave Mr. Doherty his start when he left school, between eleven and twelve years of age, and went to work as an office boy? Who gave him his chance? Where was his financial backing? Where was the man to give him opportunities? He didn't have them; he had to go out and create them for himself. Everything he got came through his own initiative and his own perseverance, on his own will, to do. Mr. Frucauff, the same way, from a boy on a lamp window in the Denver office, a position of no more importance than that of any office boy in this office, up to his present position. Who helped him? He helped himself from within, just as Mr. Doherty did and just as it lies within the power of everyone of you to do.

Other Examples. Now, I could go on and cite example after example. Perhaps just two or three will serve to show you what I mean. One of the active heads of our oil division today, a man who carries as big an executive load perhaps as any man in that division, was a working miner in the fields in Montana years ago. What took him out of that miner's outlook and that miner's surroundings and put him where he is today? Surely, it was no outside pull; surely it was no outside help. It came from the initiative and the will that was within him. And you all have that will, you all have that initiative, if you will use it. It is a question of putting it to work.

I know another man who is also one of the head executives of our oil division today, down at Bartlesville, who was a bookkeeper in a little branch gas office in a small Missouri town less than twelve years ago. What took him out of that little office in a little out of the way town up to his position. It was perseverance and the will to do.

I know another man right here in the office, that you all know, one of our responsible department heads. I know him very, very well, and remember when he wore a uniform and answered calls in our office in Denver. Now, we didn't make a start¹ for him, we

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didn't create it for him. It was simply that he had the will to come ahead. He had the perseverance. Everything that was assigned to him to do he did so well that it was noteworthy. His work was so well done that it seemed as if he was never busy, simply because he had the right spirit.

We have any number of examples right here in the office that are similar to that. Perhaps some of you could go through the list of the department heads with me and pick out the positions that they started in here, right here in our office, as stenographers and clerks of various kinds, and where they are today.

Now, they didn't get their positions today by any pull, they didn't get them because they were related to anybody or had wealth of their own, or that sort of thing. Not one of them got it that way. They rose to their positions because they delivered the goods and because they had the will to succeed.

Future Growth. Now, if in 1906 our Organization consisted of, you might say, three executives and about ten that you would class today as assistant executives, and if in 1920 it has grown to what really amounts to 300 executives and perhaps 1500 assistant executives, what can it be in 1930 or 1940, if we grow from within as we should? If we all forget our own selfish little view points and bury ourselves in the task of putting this Organization ahead, how many executives, how many promising executives can we have in another ten years? Five times as many as today? If we have a hundred times as many today as we had fourteen years ago certainly five times as many ten years from today does not look like a big task, does it, if we simply hew to the line? That would mean 1500 executives and it would mean 5,000 responsible assistant executive positions in our Organization.

Now, we can do that, and if we do, it means that there is a chance for every man and woman in this room to land in one of those positions. Now, this is not fairy talk at all. I am not holding up ideals to you that I don't believe in, because I am only telling you what I have seen. I was cadet engineer number one here in this

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New York office, and am tracing it from that day to this. I came in here under just about the same conditions that most of the cadets come in, that are coming today, and I have been right with the game and followed it through; and I am simply telling you that from what I have seen up to today, and with the faith that I have acquired up to today, that we have only begun, if we fight our battles as we should.

Stewardship. Now, in doing this work for the Organization sometimes we are apt to forget that it is all a very important big game that we are playing in this respect, that we are stewards for those who put their money in our Organization, and if we are to continue to get the money we must merit that stewardship, we must always conduct ourselves and conduct our operations in such a way as to gain the confidence of the investing public and the investing world. And that means that each one of us, in our contact with the outside world, should begin early to reflect something of what we really think the Doherty Organization stands for, we should begin to instill among our friends and associates our feelings towards this Organization, get their interests, get them to think as we think. If we will all keep that in mind and do it, it is remarkable the field that we can open for the increased sale of securities, the increase of public confidence, and remarkable the number of new people we can draw in with us that we will all be glad to welcome and all be glad to see come along with us.

Suggestions Welcome. There is one other fundamental difference between our Organization and most big organizations, if you can call our Organization big today. I don't think it is nearly as big as it will be, in any sense of the word. That condition is this: In most organizations, methods are more or less considered bible, the past methods, the past precepts, and all that sort of thing are things which no employee should tamper with. They must accept the rules as they find them, they must simply abide blindly by what you might call military guidance from executives of their organization. But our Organization is different. While we have rules and we think we have the best rules in the world, we are always willing to look for new rules, we are willing to change the ones we have, we are

always willing to accept any suggestions or any idea that will give us a better set of rules or a better method of operation or a better chance as an organization to be efficient and to be what we should be.

Builders vs. Carpenters. It means this, that a man who really thinks, has a chance. If he is a drone he had better belong to some other organization where they don't encourage thinking. In our Organization we want people who think, we want people who want to think; and I am sure that there never will come a time when we will not encourage in every possible way original thought on the part of every employee in the Organization. We want thinkers, not simply automatons; we want doers, not machines. We want men and women who have the love of the game and the inspiration to be somebody and to be something, and to see the Organization that they are connected with amount to something on account of real pride in it. We want to see such people come along with us and develop, and we want to make always the way as easy as possible for them to show their development.

We need builders, not carpenters. By that I mean builders who can plan as they go, people to whom you can give a specific problem and not have to go and show them exactly how to do it, as you would show a carpenter how to cut his timber in order to get the pitch right on his roof. We want people who can plan their work and follow it up as they go.

Personal Differences. Now, in a big organization such as ours, there comes a time when personal differences creep in, and I suppose we are all, more or less, subject to them; and yet it is only because the two people who have a personal difference have forgotten the one big thing when they have that difference. If they are both honest and if they are both sincere, there can't be any personal difference that will last any great length of time, because if they are honest and if they are sincere they must realize, each one realize of the other, that the other is doing the best that he can for what he conceives to be the good of the Organization; and if

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both meet on that ground their personal difference disappears merely in a discussion of what is the best for the good of the Organization.

Now, that sounds perhaps a bit altruistic, as if I were trying to preach to you that we all must avoid trouble, regardless of its cause. That isn't it at all, but we all should stick to the main game and keep the main thought in mind, that as the Organization grows we have a chance to grow, and that if we are all sincere in wanting to grow ourselves we must want to see the Organization grow in order to give us that chance. If anyone stands in the way—find out whether he is sincere or not, find out what the cause is, analyze it down; but keep in mind that it is not you and it is not the other fellow in a personal difference that is getting hurt, as a rule, half as much as it is the Organization that suffers every time two people fight. Every time a personal difference creeps in there is a loss of efficiency on the part of two employees from whom the Organization has the right to expect all of their honest effort and all of their time. Time lost in personal differences is really time stolen from the Organization, if you will get right down and analyze it to its ultimate real meaning.

Winning the Game. I want to warn all of you, particularly the younger employees, to keep that in mind, keep in mind the fact, just as you would in school or college, the way you would support your football team—the big thing is to win the game. Keep that big thought in your mind, that our big game is to keep this Organization going, to keep it growing, to keep it ever expanding and ever growing bigger because our success is bound to come if we help it to grow bigger.

Doherty Spirit. Now, of necessity I have had to mention a number of the things that I mentioned the last time I talked, because the subjects were so close together. Advancement in the Doherty Organization means Doherty Spirit, as a matter of fact it is the best of Doherty Spirit. It means a fair chance for every man, a fair chance for his white ally, for every person in the Organization; and the greatest, I am sure the most sincere desire on the part of

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every executive in the Organization is to see that chance granted without favor to everyone who enters it.

Now, let us look ahead just a little bit. Suppose five years from now we are twice as big an Organization right here in New York as we are here today; and there is no reason in the world why we should not be that and more. Can't you all see chances where you could better yourself? Don't you all see where in five years you might be in much better positions than you are today? Don't you all see that there is an opening?

Now, we have more than doubled in the last two years, and it is a certainty that we are going to more than double in the next five years or in the next three years. Keep that thought in mind. Let us get down to this point where, as nearly as possible, we will all forget the outside world in the sense of the present day turmoil and strife and trouble, and consideration of whether the messages were passed properly or diplomatically or not, and not let them worry us. But let us try to get ourselves back to the one fundamental place that our big game and our big chance lies in centering our thoughts and our energy and our time right here on this game that we are playing.

I will tell you that if you will all do that you will find there is more fun in this game than in any game you ever tried to play. It will beat your football games, it will beat your baseball games, basketball or anything else, if you will tackle it with that supreme spirit, if you will tackle it with the will to go in and win. You do not have to knock down a lot of old precedents, you don't have to wait for a lot of sons of directors and other incumbrances that many of the older corporations have thrust upon them to get out of your way, in this Organization. We are a young Organization, we haven't, thank God, a lot of that old precedent to bear down upon and get away from. We are free, we are young, and we have a lot of good, honest, red blooded people in the Organization that I know have the Organization at heart, and I know that all they want is to see that the whole Organization keeps that same spirit as they do,—the spirit of sticking together, the old college

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spirit that puts the ball over the line.

Unconscious Advancement And so I say to you that advancement as advancement in the Organization is not a conscious matter, it is not a matter simply of a physical change here and there. The more you advance the less conscious you are of it, the less you realize that you are advancing, because the more engrossed you become with the game, the bigger your view point of the game becomes and the more you see in it and the more chance for further advancement. Every advancement leads a man to a point where he can see two or more ahead of him.

And I say to you that the chances that the men at the top of this Organization see are so big that it is almost impossible to measure them. And they are your chances, they are not going outside to look for others, if you will come along and take those chances. They are not going to go outside and hunt around for someone to come in there, if you will do the work and keep on growing and keep up to their vision as they try to make this Organization grow.

Ambition. Now, advancement must be from the heart if it is going to last, it must be from a real ambition. You must have that personal desire to succeed and to win. It is all well and good, as you go through life, to have a good time and have lots of fun and all that. We encourage it, we like it; but at the same time don't get the idea that the good time is the big thing in life, don't get the idea that you are simply working for enough money to have a good time on, because that won't lead you very far. You probably will stay just about in your present station if that is your idea of life. I don't want to moralize or preach a sermon on subjects of that kind, but I do want you to get this one thing, which really means the essence of the whole subject,—that advancement in this Organization means the absorbing of the spirit to do, and that is the Doherty Spirit, the spirit of pushing the ball ahead always.

And if you will all do that, if you will all come along, I think

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I am safe in saying that your chiefs will see to it that you will never reach the end of the field, because the field will be ever expanding and ever bigger, so that you can go on to any extent, to any heights that you may wish, and still find yourselves within the Organization, as we hope you always will.



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THIS BOOK IS LOANED YOU, READER, TO AMUSE,
TO READ, TO TEACH, TO STUDY, NOT ABUSE.
DON'T DOG ITS EARS, DON'T PENCIL ITS INSIDE,
DON'T TURN IT DOWN NOR OPEN IT TOO WIDE.

WHY SPOIL ITS LOOKS AND GIVE ITS BACK THE "BENDS"?
READ PROMPTLY AND RETURN, IT MAY HAVE OTHER FRIENDS.

JP

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CS

